Table of Contents

INFORMATION AND RESOURCES

Prealgebra Assignments
Take a Teacher Home Videotapes
CD Lecture Video Contents
Instructions for Loading Math Lab Software On Your Computer
Math 0306 Software Topics
Math Lab Software Topics Displayed on the Computer Screen
Math 0306 Software Lessons Detail
MathPro4 Software Topics

BASIC FACTS AND FORMULAS

Basic Facts
Perimeter and Area Formulas
U.S. and Metric Systems of Measurement Conversion Charts

THE REAL NUMBER SYSTEM

Sets of Numbers in the Real Number System
Real Number System Worksheet
The Number System
The Real Number Line Worksheet

INTRODUCTION TO GEOMETRY

Geometry Concepts
Introduction to Geometry Notes
Polygons
Geometry Definitions and Facts
Plane Figures
Solid Figures
Introduction to Geometry Worksheet I
Geometry Worksheet II
SUPPLEMENTARY WORKSHEETS
........................................................................................................................................... 65
  Whole Numbers Order of Operations Worksheet........................................................... 67
  Integer Order of Operations Worksheet................................................................. 69
  Solving Linear Equations Worksheet I................................................................. 71
  Solving Linear Equations Worksheet II............................................................... 72
  Solving Linear Equations Worksheet III .............................................................. 73

CHAPTER REVIEWS AND FINAL EXAM REVIEW ........................................... 75
  Review for Chapter One Exam........................................................................... 77
  Review for Chapter Two Exam ........................................................................ 83
  Review for Chapter Three Exam ...................................................................... 87
  Review for Chapter Four Exam ....................................................................... 90
  Review for Chapter Five Exam ....................................................................... 96
  Review for Real Number Supplement ............................................................ 102
  Review for Chapter Six Exam ......................................................................... 104
  Review for Chapter Seven Exam .................................................................... 107
  Review for Chapter Nine Exam ..................................................................... 109
  Final Exam Review........................................................................................... 115
INFORMATION AND RESOURCES
Prealgebra Assignments  
Math 0306

<table>
<thead>
<tr>
<th>Section</th>
<th>Assignment</th>
<th>Section</th>
<th>Assignment</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.1</td>
<td>1-20</td>
<td>4.8</td>
<td>3-84mot</td>
</tr>
<tr>
<td>1.2</td>
<td>3-78mot,80</td>
<td>5.1</td>
<td>3-90mot</td>
</tr>
<tr>
<td>1.3</td>
<td>3-66mot,74</td>
<td>5.2</td>
<td>3-90mot</td>
</tr>
<tr>
<td>1.4</td>
<td>3-75mot,88</td>
<td>5.3</td>
<td>3-69mot,81,82</td>
</tr>
<tr>
<td>1.5</td>
<td>3-69mot,71,74</td>
<td>5.4</td>
<td>3-69mot</td>
</tr>
<tr>
<td>1.6</td>
<td>3-78mot</td>
<td>5.6</td>
<td>3-72mot,84,87</td>
</tr>
<tr>
<td>1.7</td>
<td>3-54mot,55,61</td>
<td>5.7</td>
<td>3-42mot</td>
</tr>
<tr>
<td>1.8</td>
<td>3-75mot,87,90,93</td>
<td>5.8</td>
<td>3-54mot,62,63</td>
</tr>
<tr>
<td>2.1</td>
<td>3-87mot,99,102,108,111</td>
<td>Reals*</td>
<td>Sup: p.31&amp;32, all; p.33&amp;34, 3-36mot</td>
</tr>
<tr>
<td>2.2</td>
<td>3-96mot,102,105</td>
<td>6.1</td>
<td>3-48mot</td>
</tr>
<tr>
<td>2.3</td>
<td>3-93mot</td>
<td>6.2</td>
<td>3-45mot</td>
</tr>
<tr>
<td>2.4</td>
<td>3-108mot</td>
<td>6.3</td>
<td>3-54mot</td>
</tr>
<tr>
<td>2.5</td>
<td>3-63mot</td>
<td>6.4</td>
<td>3-39mot</td>
</tr>
<tr>
<td>3.1</td>
<td>3-78mot,93,94</td>
<td>6.5</td>
<td>3-27mot</td>
</tr>
<tr>
<td>3.2</td>
<td>3-60mot,84</td>
<td>7.1</td>
<td>3-99&amp;105-114mot</td>
</tr>
<tr>
<td>3.3</td>
<td>3-90mot,108</td>
<td>7.2</td>
<td>3-36mot</td>
</tr>
<tr>
<td>3.4</td>
<td>3-66mot</td>
<td>7.3</td>
<td>3-36mot</td>
</tr>
<tr>
<td>4.1</td>
<td>3-96mot,114</td>
<td>7.4</td>
<td>3-12mot</td>
</tr>
<tr>
<td>4.2</td>
<td>3-60mot,71,72</td>
<td>9.1</td>
<td>3-54mot</td>
</tr>
<tr>
<td>4.3</td>
<td>3-90mot,101,102</td>
<td>Geo*</td>
<td>Sup: p.55-58, 3-33mot</td>
</tr>
<tr>
<td>4.4</td>
<td>3-78mot,90</td>
<td>9.2</td>
<td>3-12&amp;51-63mot</td>
</tr>
<tr>
<td>4.5</td>
<td>3-96mot,109</td>
<td>9.3</td>
<td>3-42mot</td>
</tr>
<tr>
<td>4.6</td>
<td>1,3,6,7,12-27mot,36,39,48,66,69,72</td>
<td>9.4</td>
<td>3-18&amp;27-36mot</td>
</tr>
<tr>
<td>4.7</td>
<td>3-18&amp;27-48mot</td>
<td>9.5</td>
<td>3-18&amp;42-54mot</td>
</tr>
<tr>
<td></td>
<td></td>
<td>9.6</td>
<td>3-18&amp;45-54mot</td>
</tr>
</tbody>
</table>

Problems may be added to or deleted from any assignment.

* The Real Number System and the Introduction to Geometry are found in the NHC Math 0306 Supplement and Study Guide.

mot - multiples of three - 3,6,9,12,15,18,21,24,27,30,33,36,39,42,45,48,51,54,57,60,63,66,69,72,75,78,81,84,87,90,93,96,99,102,105,108,111,114
# Take a Teacher Home Videotapes

<table>
<thead>
<tr>
<th>Chapter/Section</th>
<th>Video Title</th>
<th>Video Topic</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.8</td>
<td>Order of operations agreement - whole number</td>
<td>The Order of Operations Agreement – Whole Number Expressions &amp; Solving Linear Equations of the Form $ax + b = c$</td>
</tr>
<tr>
<td>1.9</td>
<td>Translating verbal expressions into variable express</td>
<td>Translating Verbal Expressions into Variable Expressions &amp; Translating Sentences into Equations</td>
</tr>
<tr>
<td>2.2 &amp; 2.3</td>
<td>Adding and subtracting integers [and] Order of</td>
<td>Adding and Subtracting Integers &amp; Order of Operations – Integers</td>
</tr>
<tr>
<td>2.5</td>
<td>Adding and subtracting integers [and] Order of</td>
<td>Adding and Subtracting Integers &amp; Order of Operations – Integers</td>
</tr>
<tr>
<td>3.1</td>
<td>Simplifying variable expressions [&amp;] Properties</td>
<td>Simplifying Variable Expressions &amp; Properties of Real Numbers (Distributive)</td>
</tr>
<tr>
<td>3.2 &amp; 3.3</td>
<td>Introduction to solving linear equations; addition</td>
<td>Introduction to Solving Linear Equations – Addition Property and Multiplication Property of Equations</td>
</tr>
<tr>
<td>3.4</td>
<td>Order of operations agreement - whole number</td>
<td>The Order of Operations Agreement – Whole Number Expressions &amp; Solving Linear Equations of the Form $ax + b = c$</td>
</tr>
<tr>
<td>3.4</td>
<td>Solving linear equations in one variable</td>
<td>Solving Linear Equations In One Variable</td>
</tr>
<tr>
<td>3.5</td>
<td>Translating verbal expressions into variable express</td>
<td>Translating Verbal Expressions into Variable Expressions &amp; Translating Sentences into Equations</td>
</tr>
<tr>
<td>3.5</td>
<td>Solving word problems with linear equations</td>
<td>Solving Word Problems With Linear Equations</td>
</tr>
<tr>
<td>4.4 &amp; 4.5</td>
<td>Addition and subtraction of signed fractions</td>
<td>Addition and Subtraction of Signed Fractions</td>
</tr>
<tr>
<td>4.6</td>
<td>Addition &amp; subtraction of mixed numbers &amp; Fractions,</td>
<td>Exponents, Complex Fractions, and The Order of Operations Agreement &amp; Addition and Subtraction of Mixed #s</td>
</tr>
<tr>
<td>4.8</td>
<td>Addition &amp; subtraction of mixed numbers &amp; Fractions,</td>
<td>Exponents, Complex Fractions, and The Order of Operations Agreement &amp; Addition and Subtraction of Mixed #s</td>
</tr>
<tr>
<td>7.1</td>
<td>Converting percent/ Fractions/ Decimals [and]</td>
<td>Converting Percent / Fractions / Decimals &amp; The Basic Percent Equation</td>
</tr>
<tr>
<td>7.2</td>
<td>Converting percent/ Fractions/ Decimals [and]</td>
<td>Converting Percent / Fractions / Decimals &amp; The Basic Percent Equation</td>
</tr>
<tr>
<td></td>
<td>MATH 0306 Final exam review</td>
<td>Math 0306 Final Exam Review-Tape #1: Problems 1-96; Tape #2: Problems 97-178; Tape #3: Problems 179-248</td>
</tr>
</tbody>
</table>

Videotapes may be checked out in the NHC Library to take home or at the Main Desk in the Learning Center (LC) to view in the LC. Booklets to accompany the Final Exam Review may be checked out at the Main Desk in the LC or downloaded from the NHC Learning Center webpage.
## CD Lecture Video Contents

*Prealgebra, Fourth Edition
K. Elayn Martin-Gay*

<table>
<thead>
<tr>
<th>DISC 1</th>
<th>Whole Numbers and Introduction to Algebra</th>
<th>Worked Example Number*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chapter 1</td>
<td>1.1 Tips for Success in Mathematics</td>
<td>Introduction video</td>
</tr>
<tr>
<td></td>
<td>1.2 Place Value and Names for Numbers</td>
<td>11, 28, 45, 55, 67</td>
</tr>
<tr>
<td></td>
<td>1.3 Adding Whole Numbers and Perimeter</td>
<td>7, 15, 27, 43</td>
</tr>
<tr>
<td></td>
<td>1.4 Subtracting Whole Numbers</td>
<td>11, 13, 41, 64</td>
</tr>
<tr>
<td></td>
<td>1.5 Rounding and Estimating</td>
<td>3, 15, 41, 61</td>
</tr>
<tr>
<td></td>
<td>1.6 Multiplying Whole Numbers and Area</td>
<td>11, 29, 47, 51</td>
</tr>
<tr>
<td></td>
<td>1.7 Dividing Whole Numbers</td>
<td>17, 25, 53</td>
</tr>
<tr>
<td></td>
<td>1.8 Exponents and Order of Operations</td>
<td>5, 7, 17, 23, 55, 67, 73, 79</td>
</tr>
<tr>
<td></td>
<td>1.9 Introduction to Variables and Algebraic Expressions</td>
<td>1, 9, 31, 35, 43, 51</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>DISC 2</th>
<th>Fractions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chapter 4</td>
<td>4.1 Introduction to Fractions and Equivalent Fractions</td>
</tr>
<tr>
<td></td>
<td>4.2 Factors and Simplest Form</td>
</tr>
<tr>
<td></td>
<td>4.3 Multiplying and Dividing Fractions</td>
</tr>
<tr>
<td></td>
<td>4.4 Adding and Subtracting Like Fractions and Least Common Denominator</td>
</tr>
<tr>
<td></td>
<td>4.5 Adding and Subtracting Unlike Fractions</td>
</tr>
<tr>
<td></td>
<td>4.6 Complex Fractions and Review of Order of Operations</td>
</tr>
<tr>
<td></td>
<td>4.7 Solving Equations Containing Fractions</td>
</tr>
<tr>
<td></td>
<td>4.8 Operations on Mixed Numbers</td>
</tr>
<tr>
<td>Chapter 5</td>
<td>Decimals</td>
</tr>
<tr>
<td>-----------</td>
<td>----------</td>
</tr>
<tr>
<td>5.1</td>
<td>Introduction to Decimals</td>
</tr>
<tr>
<td>5.2</td>
<td>Adding and Subtracting Decimals</td>
</tr>
<tr>
<td>5.3</td>
<td>Multiplying Decimals and Circumference of a Circle</td>
</tr>
<tr>
<td>5.4</td>
<td>Dividing Decimals</td>
</tr>
<tr>
<td>5.5</td>
<td>Estimating and Order of Operations</td>
</tr>
<tr>
<td>5.6</td>
<td>Fractions and Decimals</td>
</tr>
<tr>
<td>5.7</td>
<td>Equations Containing Decimals</td>
</tr>
<tr>
<td>5.8</td>
<td>Square Roots and the Pythagorean Theorem</td>
</tr>
</tbody>
</table>

**DISC 3**

<table>
<thead>
<tr>
<th>Chapter 6</th>
<th>Ratio and Proportion</th>
</tr>
</thead>
<tbody>
<tr>
<td>6.1</td>
<td>Ratios</td>
</tr>
<tr>
<td>6.2</td>
<td>Rates</td>
</tr>
<tr>
<td>6.3</td>
<td>Proportions</td>
</tr>
<tr>
<td>6.4</td>
<td>Proportions and Problem Solving</td>
</tr>
<tr>
<td>6.5</td>
<td>Congruent and Similar Triangles</td>
</tr>
</tbody>
</table>

**Chapter 7**

<table>
<thead>
<tr>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>7.1</td>
</tr>
<tr>
<td>7.2</td>
</tr>
<tr>
<td>7.3</td>
</tr>
<tr>
<td>7.4</td>
</tr>
<tr>
<td>7.5</td>
</tr>
<tr>
<td>7.6</td>
</tr>
</tbody>
</table>

**Chapter 8**

<table>
<thead>
<tr>
<th>Graphing and Introduction to Statistics</th>
</tr>
</thead>
<tbody>
<tr>
<td>8.1</td>
</tr>
<tr>
<td>8.2</td>
</tr>
<tr>
<td>8.3</td>
</tr>
<tr>
<td>8.4</td>
</tr>
<tr>
<td>8.5</td>
</tr>
<tr>
<td>8.6</td>
</tr>
</tbody>
</table>

**DISC 4**

<table>
<thead>
<tr>
<th>Geometry and Measurement</th>
</tr>
</thead>
<tbody>
<tr>
<td>9.1</td>
</tr>
<tr>
<td>9.2</td>
</tr>
<tr>
<td>9.3</td>
</tr>
<tr>
<td>9.4</td>
</tr>
<tr>
<td>9.5</td>
</tr>
<tr>
<td>9.6</td>
</tr>
<tr>
<td>9.7</td>
</tr>
<tr>
<td>Chapter</td>
</tr>
<tr>
<td>---------</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>10</td>
</tr>
<tr>
<td>10.1</td>
</tr>
<tr>
<td>10.2</td>
</tr>
<tr>
<td>10.3</td>
</tr>
<tr>
<td>10.4</td>
</tr>
</tbody>
</table>

*Examples are from the Exercise Set unless otherwise noted.  
(MM) Examples are from Mental Math which precedes the Exercise Set.
Instructions for Loading Math Lab Software
Onto Your Computer

Loading the CD onto your computer.
1. Put the CD into the CD-ROM drive.
2. Click on the Start button. This is usually at the bottom left corner of your computer screen.
3. Click on Programs.
4. Click on Windows Explorer.
5. Click on the CD-ROM drive. This is usually the D drive or E drive.
6. You should now see a folder whose name is NHCMath. Highlight this folder. You should be able to do this by clicking on it one time.
7. Click on the Edit button at the top of the screen.
8. Click on the Copy button from the drop down menu.
9. Click on the C drive from Windows Explorer.
10. Click on the Edit button at the top of the screen.
11. Click on the Paste button from the drop down menu.
12. This will create a folder on your C drive called NHCMath. It will also copy all of the programs onto your computer.
13. Close Windows Explorer. To do this click on File at the top left of the screen, then click on Close.

Creating a shortcut to the math programs
1. Put the cursor in an open area on the opening screen. (The screen that appears when you first turn on your computer.)
2. Right click with your mouse. Do not have the cursor over an existing icon.
3. Click New.
4. Click Shortcut.
5. Click Browse.
6. Find NHCMath on your C drive. Double click the NHCMath folder that is on the C drive.
7. When the NHCMath folder opens click on Start or Start.exe.
8. Click Open.
9. Click Next. The computer will ask if you want to enter a name. You might want to enter NHM Math, but this is optional. If you do not enter anything the name will be Start.exe.
10. Click Finished.

Important points:
1. The 3 1/2-inch disk that you received with the CD must be in your computer every time that you do any work. Your work will not be saved if the 3 1/2-inch disk is not in your computer. This must be the 3 1/2-inch disk that came with the CD.
2. Return the CD to the math department as soon as possible. The CD is needed so that it can be checked out to other students.
3. Each time that you finish working on a lesson, you should print your score. This will show that you did the work in case your 3 1/2-inch disk is damaged.
4. Keep the paper that you use to work each lesson. This is another way of showing that you worked the lesson.
## Math 0306 Software Topics

<table>
<thead>
<tr>
<th>Sections</th>
<th>Lesson Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.8</td>
<td>Order of Operations</td>
</tr>
<tr>
<td>2.2</td>
<td>Adding Integers</td>
</tr>
<tr>
<td>2.3</td>
<td>Adding and Subtracting Integers</td>
</tr>
<tr>
<td>2.4</td>
<td>Multiplying and Dividing Integers</td>
</tr>
<tr>
<td>2.5</td>
<td>Order of Operations with Integers</td>
</tr>
<tr>
<td>3.1</td>
<td>Simplifying Algebraic Expressions</td>
</tr>
<tr>
<td>3.2</td>
<td>Solving Equations: Addition Property of Equality</td>
</tr>
<tr>
<td>3.3</td>
<td>Solving Equations: Division Property of Equality</td>
</tr>
<tr>
<td>3.4</td>
<td>Solving Equations in One Variable</td>
</tr>
<tr>
<td>4.1</td>
<td>Introduction to Fractions and Equivalent Fractions</td>
</tr>
<tr>
<td>4.1a</td>
<td>Locate Points on a Line</td>
</tr>
<tr>
<td>4.2</td>
<td>Factors and Lowest Terms</td>
</tr>
<tr>
<td>4.3</td>
<td>Multiplying and Dividing Fractions</td>
</tr>
<tr>
<td>4.5</td>
<td>Add and Subtract Fractions</td>
</tr>
<tr>
<td>4.6</td>
<td>Complex Fractions</td>
</tr>
<tr>
<td>4.7</td>
<td>Solving Equations Containing Fractions</td>
</tr>
<tr>
<td>4.8</td>
<td>Operations on Mixed Numbers</td>
</tr>
<tr>
<td>5.1</td>
<td>Introduction to Decimals</td>
</tr>
<tr>
<td>5.2</td>
<td>Adding and Subtracting Decimals</td>
</tr>
<tr>
<td>5.3</td>
<td>Multiplying Decimals and Circumference of a Circle</td>
</tr>
<tr>
<td>5.4</td>
<td>Dividing Decimals</td>
</tr>
<tr>
<td>5.6</td>
<td>Fractions and Decimals</td>
</tr>
<tr>
<td>5.7</td>
<td>Equations Using Decimals</td>
</tr>
<tr>
<td>5.8</td>
<td>Square Roots and The Pythagorean Theorem</td>
</tr>
<tr>
<td>5.8a</td>
<td>Inequalities on a Number Line</td>
</tr>
<tr>
<td>6.3</td>
<td>Proportions</td>
</tr>
<tr>
<td>6.5</td>
<td>Problem Solving with Proportions and Similar Triangles</td>
</tr>
<tr>
<td>7.1</td>
<td>Percents, Decimals, and Fractions</td>
</tr>
<tr>
<td>7.2, 7.3</td>
<td>Percent Equations and Problem Solving</td>
</tr>
<tr>
<td>9.1</td>
<td>Introduction to Geometry</td>
</tr>
<tr>
<td>9.2</td>
<td>Length: U.S. and Metric Systems of Measurements</td>
</tr>
<tr>
<td>9.3</td>
<td>Perimeter and Problem Solving</td>
</tr>
<tr>
<td>9.4</td>
<td>Area and Volume</td>
</tr>
<tr>
<td>9.5</td>
<td>Weight and Mass</td>
</tr>
<tr>
<td>9.6</td>
<td>Capacity: U.S. and Metric Systems of Measurements</td>
</tr>
</tbody>
</table>

### Timed Exercises

<table>
<thead>
<tr>
<th>Sections</th>
<th>Lesson Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.3, 1.4, 1.6, 1.7</td>
<td>Whole Numbers Choose Your Time</td>
</tr>
<tr>
<td>1.3, 1.4, 1.6, 1.7</td>
<td>Timed Whole Numbers</td>
</tr>
<tr>
<td>2.2, 2.3, 2.4</td>
<td>Timed Integers</td>
</tr>
<tr>
<td>1.8, 5.8</td>
<td>Squares, Cubes, and Square Roots</td>
</tr>
</tbody>
</table>
Math Lab Software Topics Displayed on the Computer Screen

Students can complete the Math Lab computer assignments in the Learning Center, in the Mathematics Department computer labs (located in WNSP 110, 116, and 118) or at home.

To access the Math Lab software on an NHC computer:

Double click on the Math Lab icon on the desktop or go to Start, Programs, Math, then Math Lab. Click Continue, Continue, Prealgebra, then you will see the screen below. Select a lesson. You will be prompted to enter your NHC seven-digit student ID number, then press enter.
Math 0306 Software Lessons Detail

Sec. 1.8 Order of Operations
There are three problems with exponents, seven problems with order of operations including exponents and one area problem.

Sec. 2.2 Adding Integers
There are ten problems to add two or three integers and six problems to evaluate \(x \pm y\), and \(x \pm y \pm z\).

Sec. 2.3 Adding and Subtracting Integers
There are fifty problems of the type \(a + b\), \(a - b\), and \(a - (-b)\) where \(a\) and \(b\) are integers between \(-10\) and 10.

Sec. 2.4 Multiplying and Dividing Integers
There are twelve problems involving order of operations with integers.

Sec. 2.5 Order of Operations with Integers
There are twelve problems involving order of operations with integers.

Sec. 3.1 Simplifying Algebraic Expressions
There are fifteen problems to combine similar terms. Problems range from \(3x + 8x\) to \(3(2x + 5) - 2(5x + 1)\).

Sec. 3.2 Solving Equations: The Addition Property of Equality
This lesson contains twelve equations. All equations simplify to \(x + a = b\).

Sec. 3.3 Solving Equations: The Division property of Equality
This lesson contains twelve equations. All equations simplify the \(ax + b = c\). The variable is only on one side of each equation. All solutions are integers.

Sec. 3.4 Solving Equations in One Variable
There are twelve equations. Some have the variable on both sides of the equation. Some of the equations contain parenthesis. All of the solutions are integers.

Sec. 4.1 Introduction to Fractions and Equivalent Fractions
There are ten problems to find a point on a line and ten problems to write an equivalent fraction.

Sec. 4.1a Locate Points on a Line
There are twenty problems that require students to locate rational numbers on the number line be clicking on the line with the mouse.

Sec. 4.2 Factors and Lowest Terms
This lesson contains twelve problems to reduce to lowest terms. Four of the problems contain variables.

Sec. 4.3 Multiplying and Dividing Fractions
There are twelve problems to multiply and divide fractions. Two of the problems contain variables and one is a problem to evaluate an expression.

Sec. 4.5 Add and Subtract Fractions
This lesson contains twelve problems. Six problems are adding or subtracting two fractions, two problems are adding and subtracting three fractions, three fractions contain variables and three problems are equations that contain fractions.

Sec. 4.6 Complex Fractions
There are seven complex fractions to simplify. Two problems contain exponents and one is to evaluate.

Sec. 4.7 Solving Equations Containing Fractions
There are eight equations to solve. Answers will be fractions.
Sec. 4.8 Operations on Mixed Numbers
This lesson contains twelve problems to add, subtract, multiply or divide two or three mixed numbers.

Sec. 5.1 Introduction to Decimals
There are five problems to convert a number from words to decimals, five problems to write a decimal as a fraction and five problems to round off a number.

Sec. 5.2 Adding and Subtracting Decimals
There are twelve problems to add and subtract two or three decimal numbers. Two of the problems are to evaluate.

Sec. 5.3 Multiplying Decimals and Circumference of a Circle
There are twelve problems. Seven of the problems are multiplying two numbers with decimals. Five of the problems are to evaluate an expression.

Sec. 5.4 Dividing Decimals
This lesson contains ten problems to divide two numbers that contain decimals. Two of the problems are to evaluate \( \frac{x}{y} \).

Sec. 5.6 Fractions and Decimals
This lesson contains sixteen problems. Eight problems are to convert numbers from fractions to decimals and decimals to fractions. Four problems are to compare two numbers. Four of the problems are to evaluate an expression using the order of operations.

Sec. 5.7 Equations Using Decimals
There are eight equations to solve. All contain decimals and answers will contain decimals.

Sec. 5.8 Square Roots and The Pythagorean Theorem
There are twelve problems. Seven problems are to find the square root of numbers that are perfect squares and five problems are to use the Pythagorean Theorem.

Sec. 5.8a Inequalities on a Number Line
There are twelve problems to graph an inequality on a number by clicking and dragging the mouse.

Sec. 6.3 Proportions
This lesson contains twelve problems. Six problems are to determine if two ratios form a proportion.

Sec. 6.4 Problem Solving with Proportions and Similar Triangles
There are eight problems. The first four problems are stated problems and the last four problems are using a proportion to find the side of a similar triangle.

Sec. 7.1 Percents, Decimals, and Fractions
There are sixteen problems. Eight are to convert from a percent to a decimal or a decimal to a percent. Eight are to convert from a fraction to a percent or a percent to a fraction.

Sec. 7.2 Percent Equations and Problem Solving
There are twelve problems. All problems are to find the percent of a number, what percent of a number or a percent of a number is a certain number.

Sec. 9.1 Introduction to Geometry
There are twenty problems. The problems require the students to find complementary and supplementary angles, work with parallel lines and determine the size of angles of various geometric figures.
Sec. 9.2 Length: U.S. and Metric Systems of Measurements
There are twelve problems. Six are converting in the U.S. system and six are converting in the metric system.

Sec. 9.3 Perimeter and Problem Solving
This lesson contains eight problems to find the perimeter of a rectangle, triangle, parallelogram and odd shaped polygons.

Sec. 9.4 Area and Volume
There are eight problems to find the area of a rectangle, triangle, circle, and trapezoid. There are four problems to find the volume of a sphere, cone, cylinder and rectangular solid.

Sec. 9.5 Weight and Mass
There are twelve problems. Six are converting in the U.S. system and six are converting in the metric system.

Sec. 9.6 Capacity: U.S. and Metric Systems of Measurements
There are twelve problems. Six are converting in the U.S. system and six are converting in the metric system.

Timed Exercises

Sec. 1.3, 1.4, 1.6, 1.7
Whole Numbers Choose Your Time
The students are given four or six seconds to find the sum, difference, product, or quotient of the whole numbers listed in Basic Facts under Addition, Subtraction, Multiplication, and Division on pages 23 and 24 of this supplement.
Timed Whole Numbers
The problems require the students to add, subtract, multiply, and divide whole numbers mentally. The students are given 10 seconds to do the first problems. When they successfully work eight in a row the time decreases by a second. The students must work down to three seconds.

Sec. 2.2, 2.3, 2.4
Timed Integers
The problems require the students to add, subtract, multiply, and divide integers mentally. The students are given 10 seconds to do the first problems. When they successfully work eight in a row the time decreases by a second. The students must work down to three seconds.

Sec. 1.8, 5.8
Squares, Cubes and Square Roots
The students are given four seconds to find the squares, cubes, or square roots of the numbers listed in Basic Facts under Squares, Cubes, and Square Roots on page 24 of this supplement.
MathPro4 Software Topics

Distributed by Prentice Hall to accompany Prealgebra Fourth Edition written by K. Elayn Martin-Gay

1  Whole Numbers and Introduction to Algebra
   1.1  Tips for Success in Mathematics (no exercises)
   1.2  Place Value and Names for Numbers
       A  Find the place value of a digit in a whole number
       B  Write a whole number in words and in standard form
       C  Write a whole number in expanded form
       D  Compare two whole numbers
       E  Read tables
   1.3  Adding Whole Numbers and Perimeter
       A  Add whole numbers
       B  Find the perimeter of a polygon
       C  Solve problems by adding whole numbers
   1.4  Subtracting Whole Numbers
       A  Subtract whole numbers
       B  Subtract whole numbers when borrowing is necessary
       C  Solve problems by subtracting whole numbers
   1.5  Rounding and Estimating
       A  Round whole numbers
       B  Use rounding to estimate sums and differences
       C  Solve problems by estimating
   1.6  Multiplying Whole Numbers and Area
       A  Use the properties of multiplication
       B  Multiply whole numbers
       C  Find the area of a rectangle
       D  Solve problems by multiplying whole numbers
   1.7  Dividing Whole Numbers
       A  Divide whole numbers
       B  Perform long division
       C  Solve problems that require dividing by whole numbers
       D  Find the average of a list of numbers
   1.8  Exponents and Order of Operations
       A  Write repeated factors using exponential notation
       B  Evaluate expressions containing exponents
       C  Use the order of operations
       D  Find the area of a square
   1.9  Introduction to Variables and Algebraic Expressions
       A  Evaluate algebraic expressions given replacement values
       B  Translate phrases into variable expressions

2  Integers
   2.1  Introduction to Integers
       A  Represent real-life situations with an integer
       B  Graph integers on a number line (no exercises)
Compare two integers  
Find absolute value  
Find the opposite of a number  
Read bar graphs containing negative integers

2.2 Adding Integers  
Add integers  
Evaluate an algebraic expression by adding  
Solve problems by adding integers

2.3 Subtracting Integers  
Subtract integers  
Add and subtract integers  
Evaluate an algebraic expression by subtracting  
Solve problems by subtracting integers

2.4 Multiplying and Dividing Integers  
Multiply integers  
Divide integers  
Evaluate an algebraic expression by multiplying or dividing  
Solve problems by multiplying or dividing integers

2.5 Order of Operations  
Simplify expressions by using the order of operations  
Evaluate an algebraic expression  
Find the average of a list of numbers

3 Solving Equations and Problem Solving  
3.1 Simplifying Algebraic Expressions  
Use properties of numbers to combine like terms  
Use properties of numbers to multiply expressions  
Simplify expressions by multiplying and then combining like terms  
Find the perimeter and area of figures

3.2 Solving Equations: The Addition Property  
Determine whether a given number is a solution of an equation  
Use the addition property of equality to solve equations

3.3 Solving Equations: The Multiplication Property  
Use the multiplication property to solve equations  
Translate word phrases to algebraic expressions

3.4 Solving Linear Equations in One Variable  
Solve linear equations using addition and multiplication properties  
Solve linear equations containing parentheses  
Write sentences as equations

3.5 Linear Equations in One Variable and Problem Solving  
Translate sentences into mathematical equations  
Use problem-solving steps to solve problems

4 Fractions  
4.1 Introduction to Fractions and Equivalent Fractions  
Identify the numerator and the denominator of a fraction  
Write a fraction to represent the shaded part of a figure
C Graph fractions on a number line (no exercises)
D Simplify fractions of the form \(a/a, a/1\), and \(0/a\) (no exercises)
E Write equivalent fractions

4.2 Factors and Simplest Form
A Write a number as a product of prime numbers
B Write a fraction in simplest form
C Solve problems by writing fractions in simplest form

4.3 Multiplying and Dividing Fractions
A Multiply fractions
B Evaluate exponential expressions with fractional bases
C Divide fractions
D Multiply and divide given fractional replacement values
E Solve applications that require multiplication or division of fractions

4.4 Adding and Subtracting Like Fractions and Least Common Denominator
A Add or subtract like fractions
B Add and subtract given fractional replacement values
C Solve equations containing fractions
D Solve problems by adding or subtracting like fractions
E Find the least common denominator of a list of fractions

4.5 Adding and Subtracting Unlike Fractions
A Add or subtract unlike fractions
B Write fractions in order
C Evaluate expressions given fractional replacement values
D Solve equations containing fractions no exercises
E Solve problems by adding or subtracting unlike fractions

4.6 Complex Fractions and Review of Order of Operations
A Simplify complex fractions
B Review order of operations

4.7 Solving Equations Containing Fractions
A Solve equations containing fractions
B Review adding and subtracting fractions (no exercises)

4.8 Operations on Mixed Numbers
A Illustrate mixed numbers
B Write a mixed number as an improper fraction
C Write an improper fraction as a mixed or whole number
D Multiply or divide mixed or whole numbers
E Add or subtract mixed numbers
F Solve problems containing mixed numbers
G Perform operations on negative mixed numbers

5 Decimals
5.1 Introduction to Decimals
A Know the meaning of place value for a decimal number and write decimals in words
B Write decimals in standard form
C Write decimals as fractions
D Compare decimals
E Round decimals to a given place value
5.2 Adding and Subtracting Decimals
A Add or subtract decimals
B Evaluate expressions and check solutions with decimal replacement values
C Simplify expressions
D Solve problems that involve adding or subtracting decimals

5.3 Multiplying Decimals and Circumference of a Circle
A Multiply decimals
B Multiply by powers of 10
C Evaluate expressions and check solutions with decimal replacement values
D Find the circumference of a circle
E Solve problems by multiplying decimals

5.4 Dividing Decimals
A Divide decimals
B Divide by powers of 10
C Evaluate expressions and check solutions with decimal replacement values
D Solve problems by dividing decimals

5.5 Estimating and Order of Operations
A Estimate operations on decimals
B Simplify expressions containing decimals using the order of operations and check solutions
C Evaluate expressions given decimal replacement values

5.6 Fractions and Decimals
A Write fractions as decimals
B Compare fractions and decimals
C Solve area problems containing fractions and decimals

5.7 Equations Containing Decimals
A Solve equations with decimals

5.8 Square Roots and the Pythagorean Theorem
A Find the square root of a number
B Approximate square roots
C Use the Pythagorean Theorem

6 Ratio and Proportion
6.1 Ratios
A Write ratios as fractions
B Write ratios in simplest form

6.2 Rates
A Write rates as fractions
B Find unit rates
C Find unit prices

6.3 Proportions
A Know the meaning of proportion and write sentences as proportions
B Determine whether proportions are true
C Find an unknown number in a proportion
6.4 Proportions and Problem Solving
   A Solve problems by writing proportions

6.5 Congruent and Similar Triangles
   A Decide whether two triangles are congruent
   B Find the ratio of corresponding sides in similar triangles
   C Find unknown lengths of sides in similar triangles
   D Solve problems with similar triangles

7 Percent
7.1 Percents, Decimals, and Fractions
   A Know the meaning of percent
   B Write percents as decimals
   C Write decimals as percents
   D Write percents as fractions
   E Write fractions as percents
   F Convert percents, decimals, and fractions

7.2 Solving Percent Problems with Equations
   A Write percent problems as equations
   B Solve percent problems

7.3 Solving Percent Problems with Proportions
   A Write percent problems as proportions
   B Solve percent problems

7.4 Applications of Percent
   A Solve applications involving percent
   B Find percent increase and percent decrease

7.5 Percent and Problem Solving: Sales Tax, Commission, and Discount
   A Calculate sales tax and total price
   B Calculate commissions
   C Calculate discount and sale price

7.6 Percent and Problem Solving: Interest
   A Calculate simple interest
   B Use a compound interest table to calculate compound interest
   C Find monthly payments on loans

8 Graphing and Introduction to Statistics
8.1 Reading Pictographs, Bar Graphs, and Line Graphs
   A Read pictographs
   B Read and construct bar graphs
   C Read and construct histograms
   D Read line graphs

8.2 Reading Circle Graphs
   A Read circle graphs
   B Draw circle graphs

8.3 The Rectangular Coordinate System
   A Plot points on a rectangular coordinate system
   B Determine whether ordered pairs are solutions of equations
   C Complete ordered-pair solutions of equations

8.4 Graphing Linear Equations
A Graph linear equations by plotting given points

8.5 Mean, Median, and Mode
A Find the mean of a list of numbers
B Find the median of a list of numbers
C Find the mode of a list of numbers

8.6 Counting and Introduction to Probability
A Use a tree diagram to count outcomes
B Find the probability of an event

9 Geometry and Measurement

9.1 Lines and Angles
A Identify lines, line segments, rays, and angles
B Classify angles as acute, right, obtuse, or straight
C Identify complementary and supplementary angles
D Find measures of angles

9.2 Linear Measurement
A Define U.S. units of length and convert from one unit to another
B Use mixed units of length
C Perform arithmetic operations on U.S. units of length
D Define the metric units of length and convert from one unit to another
E Perform arithmetic operations on metric units of length

9.3 Perimeter
A Use formulas to find perimeter
B Use formulas to find circumference

9.4 Area and Volume
A Find the area of geometric figures
B Find the volume of geometric figures

9.5 Weight and Mass
A Define U.S. units of weight and convert from one unit to another
B Perform arithmetic operations on units of weight
C Define metric units of mass and convert from one unit to another
D Perform arithmetic operations on units of mass

9.6 Capacity
A Define U.S. units of capacity and convert from one unit to another
B Perform arithmetic operations on U.S. units of capacity
C Define metric units of capacity and convert from one unit to another
D Perform arithmetic operations on metric units of capacity

9.7 Conversions Between the Metric and U.S. Systems
A Convert between the U.S. and metric systems

9.8 Temperature
A Convert temperatures from degrees Celsius to degrees Fahrenheit
B Convert temperatures from degrees Fahrenheit to degrees Celsius

10 Polynomials

10.1 Adding and Subtracting Polynomials
A Add polynomials
B Subtract polynomials
C Evaluate polynomials at given replacement values
10.2 Multiplication Properties of Exponents
   A Use the product rule for exponents
   B Use the power of a power rule for exponents
   C Use the power of a product rule for exponents

10.3 Multiplying Polynomials
   A Multiply a monomial and any polynomial
   B Multiply two binomials
   C Squaring a binomial
   D Use the FOIL order to multiply binomials
   E Multiply any two polynomials

10.4 Introduction to Factoring Polynomials
   A Find the greatest common factor of a list of integers
   B Find the greatest common factor of a list of terms
   C Factor the greatest common factor from the terms of a polynomial
BASIC FACTS
AND
FORMULAS
## Basic Facts

### Addition

<p>| | | | | | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>0 + 0</td>
<td>0 + 5</td>
<td>1 + 2</td>
<td>1 + 6</td>
<td>2 + 4</td>
<td>2 + 8</td>
<td>3 + 5</td>
<td></td>
</tr>
<tr>
<td>0 + 1</td>
<td>0 + 6</td>
<td>1 + 3</td>
<td>1 + 7</td>
<td>2 + 5</td>
<td>2 + 9</td>
<td>3 + 6</td>
<td></td>
</tr>
<tr>
<td>0 + 2</td>
<td>0 + 7</td>
<td>1 + 4</td>
<td>1 + 8</td>
<td>2 + 6</td>
<td>3 + 6</td>
<td>4 + 8</td>
<td></td>
</tr>
<tr>
<td>0 + 3</td>
<td>0 + 8</td>
<td>1 + 5</td>
<td>1 + 9</td>
<td>2 + 7</td>
<td>3 + 7</td>
<td>4 + 9</td>
<td></td>
</tr>
<tr>
<td>0 + 4</td>
<td>0 + 9</td>
<td>1 + 6</td>
<td>1 + 10</td>
<td>2 + 8</td>
<td>3 + 8</td>
<td>5 + 8</td>
<td></td>
</tr>
</tbody>
</table>

### Subtraction

<p>| | | | | | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>0 - 0</td>
<td>3 - 2</td>
<td>5 - 1</td>
<td>6 - 3</td>
<td>7 - 4</td>
<td>8 - 4</td>
<td>9 - 3</td>
<td></td>
</tr>
<tr>
<td>1 - 0</td>
<td>3 - 3</td>
<td>5 - 2</td>
<td>6 - 4</td>
<td>7 - 5</td>
<td>8 - 5</td>
<td>9 - 4</td>
<td></td>
</tr>
<tr>
<td>1 - 1</td>
<td>4 - 0</td>
<td>5 - 3</td>
<td>6 - 5</td>
<td>7 - 6</td>
<td>8 - 6</td>
<td>9 - 5</td>
<td></td>
</tr>
<tr>
<td>2 - 0</td>
<td>4 - 1</td>
<td>5 - 4</td>
<td>6 - 6</td>
<td>7 - 7</td>
<td>8 - 7</td>
<td>9 - 6</td>
<td></td>
</tr>
<tr>
<td>2 - 1</td>
<td>4 - 2</td>
<td>5 - 5</td>
<td>7 - 0</td>
<td>8 - 0</td>
<td>9 - 0</td>
<td>9 - 7</td>
<td></td>
</tr>
<tr>
<td>2 - 2</td>
<td>4 - 3</td>
<td>6 - 0</td>
<td>7 - 1</td>
<td>8 - 1</td>
<td>9 - 0</td>
<td>9 - 8</td>
<td></td>
</tr>
<tr>
<td>3 - 0</td>
<td>4 - 4</td>
<td>6 - 1</td>
<td>7 - 2</td>
<td>8 - 2</td>
<td>9 - 1</td>
<td>9 - 9</td>
<td></td>
</tr>
<tr>
<td>3 - 1</td>
<td>5 - 0</td>
<td>6 - 2</td>
<td>7 - 3</td>
<td>8 - 3</td>
<td>9 - 2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>10 - 9</td>
<td>10 - 2</td>
<td>11 - 4</td>
<td>12 - 5</td>
<td>13 - 6</td>
<td>14 - 6</td>
<td>16 - 9</td>
<td></td>
</tr>
<tr>
<td>10 - 8</td>
<td>10 - 1</td>
<td>11 - 3</td>
<td>12 - 4</td>
<td>13 - 5</td>
<td>14 - 5</td>
<td>16 - 8</td>
<td></td>
</tr>
<tr>
<td>10 - 7</td>
<td>11 - 2</td>
<td>12 - 3</td>
<td>13 - 4</td>
<td>14 - 4</td>
<td>15 - 4</td>
<td>17 - 8</td>
<td></td>
</tr>
<tr>
<td>10 - 6</td>
<td>11 - 1</td>
<td>12 - 2</td>
<td>13 - 3</td>
<td>14 - 3</td>
<td>15 - 3</td>
<td>16 - 7</td>
<td></td>
</tr>
<tr>
<td>10 - 5</td>
<td>11 - 0</td>
<td>12 - 1</td>
<td>13 - 2</td>
<td>14 - 2</td>
<td>15 - 2</td>
<td>17 - 6</td>
<td></td>
</tr>
<tr>
<td>10 - 4</td>
<td>11 - 5</td>
<td>12 - 6</td>
<td>13 - 5</td>
<td>14 - 5</td>
<td>15 - 5</td>
<td>16 - 6</td>
<td></td>
</tr>
<tr>
<td>10 - 3</td>
<td>11 - 6</td>
<td>12 - 7</td>
<td>13 - 6</td>
<td>14 - 6</td>
<td>15 - 6</td>
<td>18 - 9</td>
<td></td>
</tr>
<tr>
<td>10 - 2</td>
<td>11 - 7</td>
<td>12 - 8</td>
<td>13 - 7</td>
<td>14 - 7</td>
<td>15 - 7</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Multiplication

<p>| | | | | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>0(0)</td>
<td>0(5)</td>
<td>1(1)</td>
<td>1(6)</td>
<td>2(3)</td>
<td>2(8)</td>
<td>3(6)</td>
</tr>
<tr>
<td>0(1)</td>
<td>0(6)</td>
<td>1•2</td>
<td>1•7</td>
<td>2•4</td>
<td>2•9</td>
<td>3•7</td>
</tr>
<tr>
<td>0•(2)</td>
<td>0•(7)</td>
<td>1•(3)</td>
<td>1•(8)</td>
<td>2•(5)</td>
<td>3•(3)</td>
<td>3•(8)</td>
</tr>
<tr>
<td>0•3</td>
<td>0•8</td>
<td>1•4</td>
<td>1•9</td>
<td>2•6</td>
<td>3•4</td>
<td>3•9</td>
</tr>
<tr>
<td>(0)(4)</td>
<td>(0)(9)</td>
<td>(1)(5)</td>
<td>(2)(2)</td>
<td>(2)(7)</td>
<td>(3)(5)</td>
<td>(4)(4)</td>
</tr>
</tbody>
</table>
### Division

<table>
<thead>
<tr>
<th>Operation</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 ÷ 0</td>
<td>U = undefined</td>
</tr>
<tr>
<td>0 ÷ 1</td>
<td>0</td>
</tr>
<tr>
<td>0 ÷ 2</td>
<td>0</td>
</tr>
<tr>
<td>0 ÷ 3</td>
<td>0</td>
</tr>
<tr>
<td>0 ÷ 4</td>
<td>0</td>
</tr>
<tr>
<td>0 ÷ 5</td>
<td>0</td>
</tr>
<tr>
<td>0 ÷ 6</td>
<td>0</td>
</tr>
<tr>
<td>0 ÷ 7</td>
<td>0</td>
</tr>
<tr>
<td>0 ÷ 8</td>
<td>0</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Operation</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 ÷ 0</td>
<td>1</td>
</tr>
<tr>
<td>1 ÷ 1</td>
<td>1</td>
</tr>
<tr>
<td>1 ÷ 2</td>
<td>1</td>
</tr>
<tr>
<td>1 ÷ 3</td>
<td>1</td>
</tr>
<tr>
<td>1 ÷ 4</td>
<td>1</td>
</tr>
<tr>
<td>1 ÷ 5</td>
<td>1</td>
</tr>
<tr>
<td>1 ÷ 6</td>
<td>1</td>
</tr>
<tr>
<td>1 ÷ 7</td>
<td>1</td>
</tr>
<tr>
<td>1 ÷ 8</td>
<td>1</td>
</tr>
</tbody>
</table>

### Squares

<table>
<thead>
<tr>
<th>Operation</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>0²</td>
<td>0</td>
</tr>
<tr>
<td>1²</td>
<td>1</td>
</tr>
<tr>
<td>2²</td>
<td>4</td>
</tr>
</tbody>
</table>

### Cubes

<table>
<thead>
<tr>
<th>Operation</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>0³</td>
<td>0</td>
</tr>
<tr>
<td>1³</td>
<td>1</td>
</tr>
<tr>
<td>2³</td>
<td>8</td>
</tr>
</tbody>
</table>

### Square Roots

<table>
<thead>
<tr>
<th>Operation</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>√0</td>
<td>0</td>
</tr>
<tr>
<td>√1</td>
<td>1</td>
</tr>
<tr>
<td>√2</td>
<td>2</td>
</tr>
</tbody>
</table>

---

24
## Perimeter and Area Formulas

<table>
<thead>
<tr>
<th>Plane Figure</th>
<th>Drawing</th>
<th>Perimeter/Circumference</th>
<th>Area</th>
</tr>
</thead>
<tbody>
<tr>
<td>Triangle</td>
<td><img src="triangle.png" alt="Triangle Drawing" /></td>
<td>$P = a + b + c$</td>
<td>$A = \frac{1}{2} bh$</td>
</tr>
<tr>
<td>Parallelogram</td>
<td><img src="parallelogram.png" alt="Parallelogram Drawing" /></td>
<td>$P = a + b + c + d$</td>
<td>$A = bh$</td>
</tr>
<tr>
<td>Rectangle</td>
<td><img src="rectangle.png" alt="Rectangle Drawing" /></td>
<td>$P = 2l + 2w$</td>
<td>$A = lw$</td>
</tr>
<tr>
<td>Rhombus</td>
<td><img src="rhombus.png" alt="Rhombus Drawing" /></td>
<td>$P = 4s$</td>
<td>$A = bh$</td>
</tr>
<tr>
<td>Square</td>
<td><img src="square.png" alt="Square Drawing" /></td>
<td>$P = 4s$</td>
<td>$A = s^2$</td>
</tr>
<tr>
<td>Trapezoid</td>
<td><img src="trapezoid.png" alt="Trapezoid Drawing" /></td>
<td>$P = a + b + c + d$</td>
<td>$A = \frac{1}{2}h(b_1 + b_2)$</td>
</tr>
<tr>
<td>Circle</td>
<td><img src="circle.png" alt="Circle Drawing" /></td>
<td>$C = \pi d$ or $2\pi r$</td>
<td>$A = \pi r^2$</td>
</tr>
</tbody>
</table>
# U.S. and Metric Systems of Measurement Conversion Charts

## LENGTH

**U.S. SYSTEM OF MEASUREMENT**

| 12 inches (in) = 1 foot (ft) | 3 feet = 1 yard (yd) | 5280 feet = 1 mile (mi) |

**METRIC SYSTEM OF MEASUREMENT**

<table>
<thead>
<tr>
<th>Prefix</th>
<th>Meaning</th>
<th>Metric Unit of Length</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kilo</td>
<td>1000</td>
<td>1 kilometer (km) = 1000 meters (m)</td>
</tr>
<tr>
<td>Hecto</td>
<td>100</td>
<td>1 hectometer (hm) = 100 m</td>
</tr>
<tr>
<td>Deka</td>
<td>10</td>
<td>1 dekameter (dam) = 10 m</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1 meter (m) = 1 m</td>
</tr>
<tr>
<td>Deci</td>
<td>1/10</td>
<td>1 decimeter (dm) = 1/10 m or 0.1 m</td>
</tr>
<tr>
<td>Centi</td>
<td>1/100</td>
<td>1 centimeter (cm) = 1/100 m or 0.01 m</td>
</tr>
<tr>
<td>Milli</td>
<td>1/1000</td>
<td>1 millimeter (mm) = 1/1000 m or 0.001 m</td>
</tr>
</tbody>
</table>

## WEIGHT AND MASS

**WEIGHT: U.S. SYSTEM OF MEASUREMENT**

| 16 ounces (oz) = 1 pound (lb) |

**MASS: METRIC SYSTEM OF MEASUREMENT**

<table>
<thead>
<tr>
<th>Prefix</th>
<th>Meaning</th>
<th>Metric Unit of Mass</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kilo</td>
<td>1000</td>
<td>1 kilogram (kg) = 1000 grams (g)</td>
</tr>
<tr>
<td>Hecto</td>
<td>100</td>
<td>1 hectogram (hg) = 100 g</td>
</tr>
<tr>
<td>Deka</td>
<td>10</td>
<td>1 dekagram (dag) = 10 g</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1 gram (g) = 1 g</td>
</tr>
<tr>
<td>Deci</td>
<td>1/10</td>
<td>1 decigram (dg) = 1/10 g or 0.1 g</td>
</tr>
<tr>
<td>Centi</td>
<td>1/100</td>
<td>1 centigram (cg) = 1/100 g or 0.01 g</td>
</tr>
<tr>
<td>Milli</td>
<td>1/1000</td>
<td>1 milligram (mg) = 1/1000 g or 0.001 g</td>
</tr>
</tbody>
</table>

## CAPACITY

**U.S. SYSTEM OF MEASUREMENT**

| 8 fluid ounces (fl oz) = 1 cup (c) | 2 pints = 1 quart (qt) |
| 2 cups = 1 pint (pt) | 4 quarts = 1 gallon (gal) |

**METRIC SYSTEM OF MEASUREMENT**

<table>
<thead>
<tr>
<th>Prefix</th>
<th>Meaning</th>
<th>Metric Unit of Capacity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kilo</td>
<td>1000</td>
<td>1 kiloliter (kl) = 1000 liter (L)</td>
</tr>
<tr>
<td>Hecto</td>
<td>100</td>
<td>1 hectoliter (hl) = 100 L</td>
</tr>
<tr>
<td>Deka</td>
<td>10</td>
<td>1 dekaliter (dal) = 10 L</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1 liter (L) = 1 L</td>
</tr>
<tr>
<td>Deci</td>
<td>1/10</td>
<td>1 deciliter (dl) = 1/10 L or 0.1 L</td>
</tr>
<tr>
<td>Centi</td>
<td>1/100</td>
<td>1 centiliter (cl) = 1/100 L or 0.01 L</td>
</tr>
<tr>
<td>Milli</td>
<td>1/1000</td>
<td>1 milliliter (ml) = 1/1000 L or 0.001 L</td>
</tr>
</tbody>
</table>

26
THE REAL NUMBER SYSTEM
Sets of Numbers in the Real Number System

**Reals**
A real number is either a rational number or an irrational number.

\[ 4, -7, 0, \frac{2}{3}, \sqrt{11} \]

**Rationals**
A rational number is any number that can be put in the form \( \frac{p}{q} \) where \( p \) and \( q \) are integers and \( q \neq 0 \).

\[ \frac{12}{6}, -\frac{5}{2}, \frac{4}{7}, \frac{8}{13} \]

**Irrationals**
An irrational number is a nonrepeating, nonterminating decimal.

\[ \sqrt{2}, \pi, -\sqrt{7}, 0.121231234 \ldots, \sqrt{13} \]

**Non-Integer Fractions**
A non-integer fraction is a fraction whose numerator is *not* a multiple of the denominator.

\[ \frac{1}{2}, -\frac{5}{4}, \frac{8}{7} \]

**Integers**
The integers consist of the natural numbers, 0, and the opposites of the natural numbers.

\[ \ldots -2, -1, 0, 1, 2, 3, \ldots \]

**Whole Numbers**
The whole numbers consist of the natural numbers and 0.

\[ 0, 1, 2, 3, 4, \ldots \]

**Natural Numbers**
The natural numbers are also referred to as the counting numbers.

\[ 1, 2, 3, 4, \ldots \]
The Number System

Identify the sets to which each of the following numbers belongs by marking an “X” in the appropriate boxes.

<table>
<thead>
<tr>
<th></th>
<th>Number</th>
<th>Natural Numbers</th>
<th>Whole Numbers</th>
<th>Integers</th>
<th>Rational Numbers</th>
<th>Irrational Numbers</th>
<th>Real Numbers</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>$-\sqrt{17}$</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.</td>
<td>$-2$</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.</td>
<td>$-\frac{9}{37}$</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4.</td>
<td>$0$</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5.</td>
<td>$-6.06$</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6.</td>
<td>$4.5\overline{6}$</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7.</td>
<td>$3.050050005\ldots$</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8.</td>
<td>$18$</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9.</td>
<td>$\frac{-43}{0}$</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10.</td>
<td>$\pi$</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11.</td>
<td>$0.634$</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>12.</td>
<td>$\sqrt{225}$</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>13.</td>
<td>$0.634$</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>14.</td>
<td>$\frac{\sqrt{4}}{\sqrt{49}}$</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>15.</td>
<td>$-\sqrt{64}$</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Number</td>
<td>Natural Numbers</td>
<td>Whole Numbers</td>
<td>Integers</td>
<td>Rational Numbers</td>
<td>Irrational Numbers</td>
<td>Real Numbers</td>
<td></td>
</tr>
<tr>
<td>--------</td>
<td>-----------------</td>
<td>--------------</td>
<td>----------</td>
<td>-----------------</td>
<td>-------------------</td>
<td>-------------</td>
<td></td>
</tr>
<tr>
<td>16. $\sqrt{13}$</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>17. $-5$</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>18. $\frac{2}{3}$</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>19. $-0.083$</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>20. $27$</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>21. $2.647$</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>22. $3.0505$</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>23. $-198$</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>24. $-\frac{1}{2}$</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>25. $10$</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Answers**

1. IN, R  
3. RN, R  
5. RN, R  
7. IN, R  
9. None  
11. RN, R  
13. RN, R  
15. I, RN, R  
17. I, RN, R  
19. RN, R  
21. RN, R  
23. I, RN, R  
25. N, W, I, RN, R
The Real Number Line Worksheet

Graph the number on the real number line.

1. \(\frac{3}{2}\)

2. \(-\frac{1}{2}\)

3. -4.5

4. 0.5

5. \(\sqrt{17}\)

6. \(-\sqrt{10}\)

7. \(-\sqrt{24}\)

8. \(\sqrt{15}\)

Graph.

9. the real numbers greater than 4

10. the real numbers greater than 1

11. the real numbers less than 0

12. the real numbers greater than -2

13. the real numbers less than -3

14. the real numbers less than 5

15. the real numbers less than -4

16. the real numbers less than -2

17. the real numbers between 2 and 6

18. the real numbers between -3 and 1

19. the real numbers between -5 and -1

20. the real numbers between -3 and 0
Solve.

21. For the inequality $x \geq 6$, which numbers listed below make the inequality true?
   a. -2.6  
   b. 0  
   c. 6  
   d. $\sqrt{83}$

22. For the inequality $x < 3$, which numbers listed below make the inequality true?
   a. $-\sqrt{21}$  
   b. 0  
   c. 3  
   d. 3.02

23. For the inequality $x \leq -5$, which numbers listed below make the inequality true?
   a. 6  
   b. -5  
   c. 0  
   d. $-\sqrt{5}$

24. For the inequality $x \geq -2$, which numbers listed below make the inequality true?
   a. -5  
   b. -2  
   c. -1.6  
   d. $\sqrt{3}$

What values of the variable $x$ make the inequality true?

25. $x > 4$  
26. $x < -3$  
27. $x \leq -6$  
28. $x \geq 2$

Graph the inequality on the real number line.

29. $x > -3$  
30. $x < 5$

31. $x \geq 0$  
32. $x \leq -4$

33. $x < -1$  
34. $x \geq 3$

35. $x \leq 1$  
36. $x > -2$
ANSWERS

1. $\bullet$

3. $\bullet$

5. $\bullet$

7. $\bullet$

9. $\bullet$

11. $\bullet$

13. $\bullet$

15. $\bullet$

17. $\bullet$

19. $\bullet$

21. c, d  23. b  25. All real numbers greater than 4 make the inequality true.

27. All real numbers less than or equal to -6 make the inequality true.

29. $\bullet$

31. $\bullet$

33. $\bullet$

35. $\bullet$

35
INTRODUCTION TO GEOMETRY
Geometry Concepts

Figures that lie in a plane are called **plane figures**.

These are all **plane figures**.

<table>
<thead>
<tr>
<th>Polygon</th>
<th>No. of Sides</th>
<th>Drawing</th>
</tr>
</thead>
<tbody>
<tr>
<td>Triangle</td>
<td>3</td>
<td><img src="image" alt="Triangle Drawing" /></td>
</tr>
<tr>
<td>Quadrilateral</td>
<td>4</td>
<td><img src="image" alt="Quadrilateral Drawing" /></td>
</tr>
<tr>
<td>Pentagon</td>
<td>5</td>
<td><img src="image" alt="Pentagon Drawing" /></td>
</tr>
<tr>
<td>Hexagon</td>
<td>6</td>
<td><img src="image" alt="Hexagon Drawing" /></td>
</tr>
<tr>
<td>Heptagon</td>
<td>7</td>
<td><img src="image" alt="Heptagon Drawing" /></td>
</tr>
<tr>
<td>Octagon</td>
<td>8</td>
<td><img src="image" alt="Octagon Drawing" /></td>
</tr>
<tr>
<td>Nonagon</td>
<td>9</td>
<td><img src="image" alt="Nonagon Drawing" /></td>
</tr>
<tr>
<td>Decagon</td>
<td>10</td>
<td><img src="image" alt="Decagon Drawing" /></td>
</tr>
</tbody>
</table>

**A polygon** is a plane closed figure determined by **three or more** line segments.

What happens as the number of sides of a polygon increases?
As the number of sides increases, the plane figure becomes more circular.

A circle is defined as a set of points in a plane equidistant from a given point called the center.

A diameter is a line segment connecting any two points of the circle passing through the center of the circle.

A radius is a line segment connecting the center of the circle with any point on the circle.

A diameter is equal to two radii.

\[ d = 2r \]
Triangle Classification by **Sides:**

- Equilateral
- Isosceles
- Scalene

Triangle Classification by **Angles:**

- Acute
- Obtuse
- Right

The sum of the measures of the interior angles of a triangle is **180 degrees**.
If the two nonparallel sides of a trapezoid are equal in length, it is called an **isosceles trapezoid**.

If all the angles of a parallelogram measure 90, it is called a **rectangle**.

If all the sides of a parallelogram are the same length, it is called a **rhombus**.

If all the sides of a parallelogram are the same length and the angles measure 90, it is called a **square**.

Two measures of plane figures are important to mathematicians:

a. the distance around a plane figure called the **perimeter** or **circumference**
   and

b. the number of square units in the interior of a plane figure called the **area**.
The perimeter of every polygon may be found by adding all the sides.

**Equilateral Triangle Shortcut**

\[ P = 3s \]

**Rectangle Shortcut**

\[ P = 2l + 2w \]
The **circumference** is the distance around a circle.

Circumference $= \pi \times $ Diameter

always results in the same ratio.

This number is named “$\pi$” (π) and is approximately ($\approx$) equal to $\frac{22}{7}$ or 3.14.

---

**Circumference** ($C$) $\div$ Diameter ($d$) = Pi ($\pi$)

or

$C = \pi d$

Since $d = 2r$, $C = \pi(2r)$ or $C = 2\pi r$

---

**Area**

Area is measured in square units. A square unit is a square one unit on each side.

For example, start with a rectangle with length ($l$) 3 units and width ($w$) 2 units.

$$A = 6 \text{ units}^2$$

$$A = 3 \times 2 \text{ units}^2$$

$$A = l \times w$$
<table>
<thead>
<tr>
<th>Plane Figure</th>
<th>Drawing</th>
<th>Perimeter/ Circumference</th>
<th>Area</th>
</tr>
</thead>
<tbody>
<tr>
<td>Triangle</td>
<td><img src="triangle.png" alt="Triangle" /></td>
<td>( P = a + b + c )</td>
<td>( A = \frac{1}{2}bh )</td>
</tr>
<tr>
<td>Parallelogram</td>
<td><img src="parallelogram.png" alt="Parallelogram" /></td>
<td>( P = a + b + c + d )</td>
<td>( A = bh )</td>
</tr>
<tr>
<td>Rectangle</td>
<td><img src="rectangle.png" alt="Rectangle" /></td>
<td>( P = 2l + 2w )</td>
<td>( A = lw )</td>
</tr>
<tr>
<td>Rhombus</td>
<td><img src="rhombus.png" alt="Rhombus" /></td>
<td>( P = 4s )</td>
<td>( A = bh )</td>
</tr>
<tr>
<td>Square</td>
<td><img src="square.png" alt="Square" /></td>
<td>( P = 4s )</td>
<td>( A = s^2 )</td>
</tr>
<tr>
<td>Trapezoid</td>
<td><img src="trapezoid.png" alt="Trapezoid" /></td>
<td>( P = a + b + c + d )</td>
<td>( A = \frac{1}{2}h(b_1 + b_2) )</td>
</tr>
<tr>
<td>Circle</td>
<td><img src="circle.png" alt="Circle" /></td>
<td>( C = \pi d ) or ( 2\pi r )</td>
<td>( A = \pi r^2 )</td>
</tr>
</tbody>
</table>
### Introduction to Geometry Notes

#### Basic Concepts:

<table>
<thead>
<tr>
<th>Description</th>
<th>Drawing</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td></td>
</tr>
<tr>
<td>2.</td>
<td></td>
</tr>
<tr>
<td>3.</td>
<td></td>
</tr>
</tbody>
</table>

#### Parts of Lines:

<table>
<thead>
<tr>
<th>Description</th>
<th>Drawing</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td></td>
</tr>
<tr>
<td>2.</td>
<td></td>
</tr>
</tbody>
</table>

**Definition of an Angle:** ________________________________
### Types of Angles:

<table>
<thead>
<tr>
<th>Description</th>
<th>Drawing</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td></td>
</tr>
<tr>
<td>2.</td>
<td></td>
</tr>
<tr>
<td>3.</td>
<td></td>
</tr>
<tr>
<td>4.</td>
<td></td>
</tr>
</tbody>
</table>

### Pairs of Angles:

<table>
<thead>
<tr>
<th>Description</th>
<th>Drawing</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td></td>
</tr>
<tr>
<td>2.</td>
<td></td>
</tr>
<tr>
<td>3.</td>
<td></td>
</tr>
</tbody>
</table>
Lines in a Plane:

<table>
<thead>
<tr>
<th>Description</th>
<th>Drawing</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td></td>
</tr>
<tr>
<td>2.</td>
<td></td>
</tr>
<tr>
<td>3.</td>
<td></td>
</tr>
</tbody>
</table>

When two lines intersect, pairs of ________________ angles are formed.

Types of Intersecting Lines in a Plane:

<table>
<thead>
<tr>
<th>Description</th>
<th>Drawing</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td></td>
</tr>
<tr>
<td>2.</td>
<td></td>
</tr>
</tbody>
</table>

Vertical angles have the ________________ measure.

If two parallel lines are cut by a third line (called the ________________), various pairs of angles are formed.
Angles formed by Parallel Lines cut by a Transversal:

<table>
<thead>
<tr>
<th>Description</th>
<th>Drawing</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td><img src="image" alt="Drawing" /></td>
</tr>
<tr>
<td>2.</td>
<td></td>
</tr>
<tr>
<td>3.</td>
<td></td>
</tr>
</tbody>
</table>
## Polygons

<table>
<thead>
<tr>
<th>Polygon</th>
<th>Number of Sides</th>
<th>Drawing</th>
</tr>
</thead>
<tbody>
<tr>
<td>Triangle</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Quadrilateral</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pentagon</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hexagon</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Heptagon</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Octagon</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nonagon</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Decagon</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Geometry Definitions and Facts

A ________________________ is defined as a set of points in a plane equidistant from a given point called the center.

A ________________________ is a line segment connecting any two points of the circle passing through the center of the circle.

A ________________________ is a line segment connecting the center of the circle with any point on the circle.

A ________________________ is equal to two radii ( $d =$ ).

<table>
<thead>
<tr>
<th>Classification of Triangles by Sides</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Classification of Triangles by Angles</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
</tbody>
</table>
The sum of the measures of the interior angles of a triangle is ____________ degrees.

If the two nonparallel sides of a trapezoid are equal in length, it is called an

__________________________________________________.

If all the angles of a parallelogram measure 90°, it is called a

______________________________________________.

If all the sides of a parallelogram are the same length, it is called a

______________________________________________.

If the sides of a parallelogram are the same length and the angles measure 90°, it is called a

______________________________________________.
Plane Figures

The distance around a plane figure is called the ________________ or ________________.

The number of square units in the interior of a plane figure is called the ________________.

<table>
<thead>
<tr>
<th>Plane Figure</th>
<th>Drawing</th>
<th>Perimeter or Circumference</th>
<th>Area</th>
</tr>
</thead>
<tbody>
<tr>
<td>Triangle</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Parallelogram</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rectangle</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rhombus</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Square</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Trapezoid</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Circle</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
The number of cubic units in the interior of a solid figure is called the ________________.

<table>
<thead>
<tr>
<th>Solid Figure</th>
<th>Drawing</th>
<th>Volume Formula</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rectangular Solid</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cube</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sphere</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Circular Cylinder</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cone</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Square-Based Pyramid</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Introduction to Geometry Worksheet I

1. Given \( \angle LOM = 83^\circ \) and \( \angle LON = 142^\circ \), find the measure of \( \angle MON \).

2. Given \( \angle LOM = 42^\circ \) and \( \angle LON = 93^\circ \), find the measure of \( \angle MON \).

Find the measure of \( \angle x \).

3. \[ \angle \begin{array}{c} x \\ 158^\circ \\ 74^\circ \end{array} \]

4. \[ \angle \begin{array}{c} x \\ 88^\circ \\ 34^\circ \end{array} \]

Given \( \angle LON \) is a right angle, find the measure of \( \angle x \).

5. \[ \angle \begin{array}{c} 5x \\ x \\ \end{array} \]

6. \[ \angle \begin{array}{c} x \\ 2x \\ \end{array} \]

7. \[ \angle \begin{array}{c} x \quad x+14^\circ \\ x \quad \end{array} \]

8. \[ \angle \begin{array}{c} x \quad x+31^\circ \\ \end{array} \]
Find the measure of $\angle x$.

9. 

10. 

11. 

12. 

Find $x$.

13. 

14. 

15. 

16. 

17. 

18.
Find the measure of $\angle x$.

19. 

20. 

Find $x$.

21. 

22. 

Given $l_1 \parallel l_2$, find the measures of $\angle a$ and $\angle b$.

23. 

24. 

25. 

26. 

Given $l_1 \parallel l_2$, find $x$.

27. 

28.
29.

\[
\begin{align*}
\text{l}_1 & \quad x + 20^\circ \\
\text{l}_2 & \quad 3x
\end{align*}
\]

Find the measures of \( \angle x \) and \( \angle y \).

31.

\[
\begin{align*}
\text{l}_1 & \quad 135^\circ \\
x & \quad 76^\circ \\
y & \quad
\end{align*}
\]

33.

\[
\begin{align*}
\text{l}_1 & \quad \angle x = 36^\circ \\
x & \quad \angle y = 139^\circ
\end{align*}
\]

31.

\[
\begin{align*}
\text{l}_1 & \quad x + 50^\circ \\
\text{l}_2 & \quad 4x
\end{align*}
\]

Find the measures of \( \angle x \) and \( \angle y \).

32.

\[
\begin{align*}
x & \quad y
\end{align*}
\]

34.

\[
\begin{align*}
x & \quad y
\end{align*}
\]

Answers:

1. \( 59^\circ \)  
2. \( 84^\circ \)  
3. \( 15^\circ \)  
4. \( 38^\circ \)  
5. \( 912^\circ \)  
6. \( 112^\circ \)  
7. \( 112^\circ \)  
8. \( 20^\circ \)  
9. \( 36^\circ \)  
10. \( 19^\circ \)  
11. \( 98^\circ \)  
12. \( 20^\circ \)  
13. \( 20^\circ \)  
14. \( 36^\circ \)  
15. \( 156^\circ \)  
16. \( 24^\circ \)  
17. \( 45^\circ \)  
18. \( 29^\circ \)  
19. \( 40^\circ \)  
20. \( 40^\circ \)  
21. \( \angle a = 42^\circ \), \( \angle b = 42^\circ \)  
22. \( \angle a = 156^\circ \), \( \angle b = 24^\circ \)  
23. \( \angle x = 121^\circ \), \( \angle y = 76^\circ \)  
24. \( \angle x = 36^\circ \), \( \angle y = 126^\circ \)
Geometry Worksheet II

Find the complement of the following angles:  
1. 34°  
2. 72°

Find the supplement of the following angles:  
3. 153°  
4. 48°

Use the given line for problems #5 - #10:

5. If \( AB = 14 \), \( BC = 5 \), and \( AD = 26 \), find the length of \( CD \).
6. If \( AB = 18 \), \( BC = 2 \), and \( AD = 30 \), find the length of \( CD \).
7. If \( AD = 40 \), \( CD = 12 \), find the length of \( AC \).
8. If \( BC = 6 \), \( CD = 8 \), and \( AD = 18 \), find the length of \( AB \).
9. If \( AB = 15 \), and \( BD \) is twice the length of \( AB \), find the length of \( AD \).
10. If \( AC = 20 \) and \( CD \) is half the length of \( AC \), find the length of \( AD \).

Given the angle for problems #11 and #12:

11. Given \( \angle LOM = 54° \) and \( \angle LON = 108° \), find the measure of \( \angle MON \).
12. Given \( \angle LOM = 68° \) and \( \angle MON = 42° \), find the measure of \( \angle LON \).

Find the measure of \( x \) for problems #13 and #14:

13. \( x \)  
14. \( x \)
Given that $\angle LON$ is a right angle, find the measure of $\angle x$ for problems #15 - #18.

15. 

16. 

17. 

18. 

Find the measure of $\angle x$ for problems #19 - #32.

19. 

20. 

21. 

22. 

23. 

24. 

25. 

26.
Find the measure of \( \angle x \).

Given that \( l_1 \parallel l_2 \), find the measures of angles \( a \) and \( b \).
Given that \( l_1 \parallel l_2 \), find \( x \).

37.  
\[
\begin{array}{ccc}
l_1 & \rightarrow & 3x \\
l_2 & \rightarrow & 7x \\
\end{array}
\]

38.  
\[
\begin{array}{ccc}
l_1 & \rightarrow & 2x \\
l_2 & \rightarrow & 4x \\
\end{array}
\]

39.  
\[
\begin{array}{ccc}
l_1 & \rightarrow & 6x \\
l_2 & \rightarrow & x + 40° \\
\end{array}
\]

40.  
\[
\begin{array}{ccc}
l_1 & \rightarrow & x + 20° \\
l_2 & \rightarrow & 3x \\
\end{array}
\]

41. One angle in a triangle is a right angle, and one angle is equal to 25°. What is the measure of the third angle?

42. A triangle has a 55° and a right angle. Find the measure of the third angle.

43. Two angles of a triangle measure 40° and 100°. Find the measure of the third angle.

44. A triangle has a 15° angle and a 70° angle. What is the measure of the third angle?
45. Given that $\angle a = 105^\circ$ and $\angle b = 65^\circ$, find the measures of angles $x$ and $y$.

46. Given that $\angle a = 140^\circ$ and $\angle b = 120^\circ$, find the measures of angles $x$ and $y$.

47. Given that $\angle y = 150^\circ$, find the measures of angles $a$ and $b$.

48. Given that $\angle y = 125^\circ$, find the measures of angles $a$ and $b$.

**Answers**

1. 56°  3. 27°  5. 7  7. 28  9. 45  11. 54°  13. 120°  15. 18°  17. 29°  19. 142°  21. 115°  
23. 10  25. 20  27. 20  29. 108°  31. 17  33. $a = 48^\circ$, $b = 132^\circ$  35. $a = 58^\circ$, $b = 122^\circ$  37. 18°  
39. 20°  41. 65°  43. 40°  45. $x = 140^\circ$, $y = 115^\circ$  47. $a = 30^\circ$, $b = 60^\circ$
SUPPLEMENTARY WORKSHEETS
Whole Numbers Order of Operations Worksheet

All work must be shown for credit.

1. $5 \cdot 2 + 3$
2. $8 \div 2 - 3$
3. $3^2 + 4$

4. $3(8 - 6) - 1^2$
5. $16 - (10 + 5) \div 3$
6. $2^3 + 8 - 6$

7. $5 \cdot 2^2 + 3^2$
8. $5 - (3 - 1) + 1$
9. $18 - 4^2 \div 8$

10. $2^3 + 3(5 - 2)^2$
11. $3^3 - 2(3)$
12. $24 - 2(1 + 2)^2$

13. $5(7 - 4) - 1$
14. $20 - (2 + 4) \div 3$
15. $23 + 1^4 - 4 \cdot 5 \div 4 - 1$

16. $20 - 10 \div 5$
17. $14 - 2 \cdot 6$
18. $5^2 - 5 + 2$

19. $15 - (9 + 3) \div 6$
20. $4(13 + 2) \div 5$
21. $20 - 2^3 - 4$

22. $12 - 8 \div 2$
23. $24 \div 2 - 3 \cdot 4$
24. $5^2 + 4(15 \div 3)$
25. \((4 - 1)^2 + 2^3\)  
26. \(20 - (3 + 1)^3\)  
27. \(6(7 - 5)^3 - 20\)

28. \(18 - (16 - 2) ÷ 7\)  
29. \(11 + 2 - 3 \cdot 4 ÷ 3\)  
30. \(4(20 - 14) ÷ 8 + 1\)

31. \(\frac{5^2 + 3}{3^2 - 2}\)  
32. \(\frac{9 - (4 - 3)^4}{6 - 3 + 1}\)  
33. \(\frac{4(9 - 6) + 4}{3^2 - 1}\)

34. \(\frac{5 - [2^3 - (4 + 2)]}{5 - 2^2}\)  
35. \(\frac{4[20 ÷ (3 + 2)]}{2^3 - 4}\)  
36. \(\frac{2^3 + 4 \cdot 3}{3 \cdot 2 + 4}\)

37. \(\frac{3(8 + 2)}{4^2 - 1}\)  
38. \(\frac{2[40 ÷ (2 + 6)]}{8 - 2 + 4}\)  
39. \(5^2 - [(12 + 3) ÷ 5]\)

40. \(8 \cdot 2 + [10 ÷ (7 - 2)]\)

**Answers**

1. 13  
3. 13  
5. 11  
7. 29  
9. 16  
11. 21  
13. 14  
15. 18  
17. 2  
19. 13  
21. 8  
23. 0  
25. 17  
27. 28  
29. 9  
31. 4  
33. 2  
35. 4  
37. 2  
39. 22
## Integer Order of Operations Worksheet

All work must be shown for credit.

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>$6 - 15 ÷ 3$</td>
<td>2. $-10 ÷ 2 + 1$</td>
</tr>
<tr>
<td>4.</td>
<td>$1 - (9 - 4) ÷ 5$</td>
<td>5. $7 - (-2)^3$</td>
</tr>
<tr>
<td>7.</td>
<td>$2(-6 + 2) ÷ 4$</td>
<td>8. $7 - 3(4 - 5)$</td>
</tr>
<tr>
<td>10.</td>
<td>$-7 + 1^2 + 2$</td>
<td>11. $-3^3 - 6(-2) - 2$</td>
</tr>
<tr>
<td>13.</td>
<td>$-8(2 - 6) ÷ 2$</td>
<td>14. $4(6 - 9) ÷ 6$</td>
</tr>
<tr>
<td>16.</td>
<td>$8 - 3 \cdot 2 - 33 ÷ 11$</td>
<td>17. $9 - 3(6 ÷ 2)$</td>
</tr>
<tr>
<td>19.</td>
<td>$7 \cdot 2 - 5 \cdot 3$</td>
<td>20. $20 ÷ 4 - 14 ÷ 2$</td>
</tr>
<tr>
<td>22.</td>
<td>$(-3)^2 \cdot (5 - 7)^2 - (-9) ÷ 3$</td>
<td>23. $1^3 - 6 ÷ (-3)$</td>
</tr>
</tbody>
</table>
25. \((-1) \cdot (2 - 6)^2 \div 8 + 8 - 3 \cdot 4\) 
26. \(5 - (-3)^2 - 6\) 
27. \(10 \div 5 - (-2)^2\)

28. \(20 - 2 \cdot 7 + 1 - (-3) + 10\)

**Given** \(w = -1,\ x = 6,\ y = 3,\) and \(z = -2;\) evaluate the following:

29. \(4w + 2y\) 
30. \(x - 3(-z)\) 
31. \(xy + z\)

32. \(9z \div x\) 
33. \(x^2 - y^2\) 
34. \(y^2 - z^2\)

35. \(\frac{2x + y}{z + w}\) 
36. \(\frac{3x - z}{-w}\) 
37. \(\frac{x + w}{y - z}\)

38. \(\frac{xy}{z} \div w\) 
39. \((-x + z)^2 \div 8\) 
40. \((y + z)^2 + (w - x)^2\)

**Answers**

1. 1  
3. -3  
5. 15  
7. -2  
9. -13  
11. -17  
13. 16  
15. -6  
17. 0  
19. -1  
21. -1  
23. 3  
25. -6  
27. -2  
29. 2  
31. -9  
33. 27  
35. -5  
37. 1  
39. 8
Solving Linear Equations Worksheet I
(Sections 3.1 – 3.4)

Simplify. Combine like terms.

1. \(12y - 18y\)  
2. \(-4(y + 5)\)  
3. \(3x + 6y - 9x + 4\)  
4. \(6(x - 9) + 10 - 3x\)

5. Is 4 a solution of \(5(2 - x) = -10\)? Show work to justify your answer.

Solve and check the following equations. Show all steps.

6. \(4x + 20 = 0\)  
7. \(5x - 3 = 2x - 27\)  
8. \(6x - 8 = 2x + 16\)

9. \(12 - 3x = 22 + 2x\)  
10. \(x + 7x - 12 = -20\)  
11. \(7x + 4 - 13x = -1 + 23\)

12. \(18 = 2x - 14\)  
13. \(4y - 8y = 4 - 32\)  
14. \(4y - 19 = -6y + 11\)

15. \(7x + 5 = 12x - 10\)  
16. \(26 = 24 - x\)  
17. \(2(6x - 7) = 10\)

18. \(19 - 3x = 14 + 2x\)  
19. \(2(7 + 5y) - 3y = -35\)  
20. \(14 + 4(x - 5) = 6 - 2x\)

ANSWERS

1. \(-6y\)  
3. \(-6x + 6y + 4\)  
5. yes  
7. \(-8\)  
9. \(-2\)  
11. \(-3\)  
13. \(7\)  
15. \(3\)  
17. \(2\)  
19. \(-7\)
Solving Linear Equations Worksheet II
(Section 3.4)

Solve for the variable. All work must be shown and all problems must be checked.

1. $4x + 3 = 2x + 9$
2. $6z + 5 = 3z + 20$
3. $2n - 3 = 5n - 18$
4. $4t - 7 = 10t - 25$
5. $3z + 5 = 19 - 4z$
6. $2m + 3 = 23 + m$
7. $8 - 3m = 8m - 14$
8. $12 - 5y = 3y - 12$
9. $5n - 1 + 2n = 4n + 8$
10. $4t - 8 + 12t = 3 - 4t - 11$
11. $2a + 3 - 9a = 3a + 33$
12. $-2(4x + 1) = 22$
13. $5(2x + 1) - 7 = 28$
14. $3(3x - 4) + 2x = 10$
15. $4(3x + 1) - 5x = 25$
16. $6 + 3(3x - 3) = 24$
17. $3(2x - 5) = 4x + 1$
18. $-3(2x - 5) = 21$
19. $7x - 3(x - 4) = 20$
20. $2 - 3(5x + 2) = 2(3 - 5x)$

ANSWERS

1. {3} 3. {5} 5. {2} 7. {2} 9. {3} 11. {-3} 13. {3} 15. {3} 17. {8} 19. {2}
Solving Linear Equations Worksheet III
(Section 3.4)

Solve showing all steps. Check the odds.

1. \(20 = x - 8\) \hspace{1cm} 2. \(x + 10 = -2 + 5\)

3. \(10 - x = 19\) \hspace{1cm} 4. \(-10x + 4 + 9x = 1\)

5. \(2y - 6y = 20\) \hspace{1cm} 6. \(3(2x - 1) = 21\)

7. \(14y - 4 = 9y + 11\) \hspace{1cm} 8. \(6x - 9x = -24\)

9. \(2x + 6 = 6x + 18\) \hspace{1cm} 10. \(-30 = -3y\)

ANSWERS

1. \(\{28\}\) 3. \(\{-9\}\) 5. \(\{-5\}\) 7. \(\{3\}\) 9. \(\{-3\}\)
CHAPTER REVIEWS AND FINAL EXAM REVIEW
Review for Chapter One Exam

Determine the place value of the digit 3 in the whole number.
1. 463,981

Write each whole number in words.
2. 4,200,091
3. 3,072

Write the whole number in standard form.
4. Last year the population of a city increased by two thousand, one hundred eight.

Write each whole number in expanded form.
5. 63,421
6. 32,501,002

Use < or > for _____ to write a true sentence.
7. 0 _____ 14
8. 37 _____ 42

The table shows the number of votes each candidate received in the last election. Use this table to answer the following question.

<table>
<thead>
<tr>
<th>Candidate</th>
<th>Votes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mr. Olsen</td>
<td>2,078</td>
</tr>
<tr>
<td>Ms. Li</td>
<td>3,760</td>
</tr>
<tr>
<td>Mr. Barone</td>
<td>2,780</td>
</tr>
<tr>
<td>Ms. Vaporis</td>
<td>3,706</td>
</tr>
</tbody>
</table>

9. Write the number of votes received by Mr. Barone in expanded form.
Review for Chapter One Exam

Perform the indicated operation.

10. \[777 + 948\]  
11. \[\frac{36}{36}\]  
12. \[50 - 11\]  

13. \[475 \times 4\]  
14. \[508 \times 18\]  
15. \[(590)(80)\]  

16. \[\frac{45}{9}\]  
17. \[885 - 44\]  
18. \[\frac{9}{0}\]  

19. \[1150 \div 46\]  
20. \[6587 - 2524\]  
21. \[5 \overline{5255}\]  

22. \[245,447 \div 400\]  
23. \[91 - 28\]  
24. \[531 + 881\]  

Find the perimeter.

25.  

![Pentagon with sides 115 ft. each]

26.  

![Triangle with sides 596 yards, 348 yards, and 763 yards]
27. 

![Diagram](image)

Solve.

28. Last year a company had 5,846 employees. This year the number of employees increased by 1,388. How many employees does the company have now?

29. Find the product of 7 and 0.

30. Lew is installing an invisible fence in his back yard which measures 111 feet by 68 feet by 87 feet by 99 feet. How many feet of wiring are needed to enclose his yard?

31. A rectangular plot of land measures 60 feet by 170 feet. Find its area.

32. Find the sum of 31 and 32.

33. Claire is reading a 501 page book. If she has just finished reading page 285, how many more pages must she read to finish the book?
34. The textbook for a history class costs $51. There are 23 students in the class. Find the total cost of the history books for the class.

35. Find the quotient of 54 and 6.

36. A camera that sells regularly for $250 is discounted by $69 in a sale. What is the sale price?

37. Ms. Losch has a piece of rope 227 feet long that she cuts into pieces for an experiment in her first grade class. Each piece of rope is to be 9 feet long. How many 9 foot long pieces of rope can she cut from the original piece of rope?

38. Find the difference of 33 and 5.

39. Round the whole number 45,746,400 to the nearest million.

Estimate the answer by rounding each number to the nearest ten.

40.  

$\begin{array}{c}
763 \\
- 98 \\
\hline
665 
\end{array}$

41. 591 x 304

Estimate the answer by rounding each number to the nearest hundred.

42.  

$\begin{array}{c}
708 \\
519 \\
291 \\
637 \\
+ 718 \\
\hline
2185 
\end{array}$
Solve each problem by estimating.

43. The Pan family took a trip and traveled 55, 165, 649, 639, 798, and 360 miles on 6 consecutive days. Round each distance to the nearest hundred to estimate the distance they traveled.

44. Andy wants to buy a refrigerator for $799, a stove for $459, and a dishwasher for $249. Round each cost to the nearest hundred to estimate the total cost.

Use the distributive property to rewrite each expression.

45. 8(5+3)  
46. 9(8+2)

Find the area of each rectangle.

47.  

48.  

49.
Find the average of each list of numbers.

50. 25, 29, 26, 30, 57, 24, 26  
51. 269, 695, 660, 716

Write using exponential notation.

52. $18 \times 18 \times 18 \times 18$  
53. $8 \times 8 \times 8 \times 8$

54. Find the square of 15.  
55. Find the cube of 4.

Evaluate.

56. $9^3$  
57. $12^2$

Simplify.

58. $17 + 26 \times 30$  
59. $0 \div 7 + 4 \times 8$  
60. $19 \times 6 + 10 \times 12$

61. $\{[57 - 2 \times 4] - [66 \div (1 + 2)]\} \times 6$  
62. $7 \left[5 + 6(2^2)\right]$

63. List the digits  
64. List the set of whole numbers

Answers

1. thousands  
2. four million, two hundred thousand, ninety-one  
3. three thousand, seventy-two  
4. $2,108$  
5. $60,000 + 3,000 + 400 + 20 + 1$  
6. $30,000,000 + 2,000,000 + 500,000 + 1,000 + 2$  
7. $<$  
8. $< 9. 2,000 + 700 + 80$  
10. $1,725$  
11. $1$  
12. $39$  
13. $1,900$  
14. $9,144$  
15. $47,200$  
16. $5$  
17. $841$  
18. $18$  
19. $25$  
20. $4,063$  
21. $1,051$  
22. $613$  
23. $R247$  
24. $1,412$  
25. $575$ ft.  
26. $1,707$ yds.  
27. $354$ in.  
28. $7,234$ employees  
29. $0$  
30. $365$ ft.  
31. $10,200$ ft$^2$  
32. $63$  
33. $216$ pages  
34. $\$1,173$  
35. $9$  
36. $\$181$  
37. $25$ pieces of rope  
38. $28$  
39. $46,000,000$  
40. $660$  
41. $180,000$  
42. $2,800$  
43. $2,700$ miles  
44. $\$1,500$  
45. $8 \times 5 + 8 \times 3$  
46. $9 \times 8 + 9 \times 2$  
47. $300$ m$^2$  
48. $18$ ft$^2$  
49. $81$ mi$^2$  
50. $31$  
51. $585$  
52. $18^5$  
53. $8^4$  
54. $225$  
55. $64$  
56. $729$  
57. $144$  
58. $797$  
59. $32$  
60. $234$  
61. $162$  
62. $203$  
63. $0, 1, 2, 3, 4, 5, 6, 7, 8, 9$  
64. $\{0, 1, 2, 3, \ldots\}$
Review for Chapter Two Exam

1. List the integers.

Represent each quantity by an integer.

2. a climb of 128 feet down into a subterranean cave

3. finding 58 cents

Graph the numbers on the number line.

4. 0, 2, 4, 6

5. −11, -9, -7, -5

6. −7, -5, -3, -1

Insert <, >, = to make the statement true.

7. 8 _____ -5

8. −76 _____ -22

9. 0 _____ -42

10. −|−17|_____ −|−34|

Simplify.

11. |−4|

12. |4|

Find the opposite of each integer.

13. 0

14. 24

Simplify.

15. −(−11)

16. −|−24|
Add the numbers using the number line.

17. \(-6 + 1\)

Perform the indicated operation.

18. \(-36 + (-45)\)  
19. \(0 \times (-17)\)  
20. \(-90 + (+50)\)

21. \((-8)(-3)(4)\)  
22. \(9 + (-79)\)  
23. \(0 - (-17)\)

24. \(11 \times (-17)\)  
25. \(-98 + 0\)  
26. \(-19 \times (-6)\)

27. \(\frac{17}{0}\)  
28. \(\frac{60}{-3}\)  
29. \(\frac{0}{78}\)

30. \((3)(-3)(-3)\)  
31. \(4 - (-4)\)  
32. \(-15 - 15\)

33. \(-4 - 0 - 12 - (-13) + 1\)  
34. \(-19 - 1 + (-17)\)  
35. \(-15 + 11 - (-19) - 3\)

36. \(-20 + 15 + (-12)\)  
37. \(7 + (-18) + 1 + (-15) + 4 + (-19)\)

38. \(6 + 13 + (-19)\)

Evaluate \(x + y + z\) for the given replacement values.

39. \(x = -20, y = 10,\) and \(z = -7\)  
40. \(x = -20, y = 10,\) and \(z = -4\)

Evaluate \(x - y\) for the given replacement values.

41. \(x = 13\) and \(y = -27\)  
42. \(x = -23\) and \(y = 8\)

Evaluate each expression for the given replacement values.

43. \(\frac{x}{y}\) for \(x = -41\) and \(y = 0\)  
44. \(\frac{x}{y}\) for \(x = 0\) and \(y = -31\)

45. \(xy\) for \(x = -7\) and \(y = -2\)

Evaluate each expression for \(x = -2, y = 3,\) and \(z = -4.\)

46. \(14 - z^2\)  
47. \((4z)(-9x - 5y)\)
Solve.

48. A deep-sea diver dives from the surface to 132 feet below the surface. She then dives down 12 more feet. Find the diver’s depth.

49. Tori has $209 in her checking account. She writes a check for $51, makes a deposit for $105, and then writes another check for $101. Find the amount left in her account. (Write the amount as an integer.)

50. In a card game, it is possible to have a negative score. If Mia’s score is 15, what is her new score if she loses 20 points?

51. A weather forecaster predicts that the temperature will drop 6 degrees each hour for the next 8 hours. If the temperature is 9 degrees before the temperature starts falling, what is the temperature after the drop?

52. Subtract 36 from –12.

53. The temperature at 5 p.m. on January 3 was -6° Fahrenheit. By 9 p.m. the temperature had risen 9 degrees. Find the temperature at 9 p.m.

54. Ben lost $475 on each of 5 consecutive days in the stock market. If he had $16,975 before his loss, how much does he have after his loss?

55. The formula for converting a temperature from Fahrenheit to Celsius is \( F = \frac{9}{5} C + 32. \) When \( C = -5^\circ \), what does \( F \) equal?

Evaluate.

56. \((-6)^5\)

57. \((-1)^6\)

Simplify.

58. \((28 + 16) \cdot (15 - 10)\)

59. \(-7 \cdot 17 - 9 \cdot 7\)

60. \(-8 + 22 \cdot 27 + 5\)

61. \(-|-16| - |-10 - 8|\)

62. \(-|21| - |10|\)

63. \((-5)^2 - 9^2\)

64. \(-2^3\)
ANSWERS

1. \{-3, -2, -1, 0, 1, 2, 3, \ldots\}  
2. -128  
3. 58  
4. 

5. 

6. 

7. 8 > 5  
8. -76 < -22  
9. > 10. > 11. 4  
12. 4  
13. 0  
14. -24  
15. 11  
16. -24  
17. -5  
18. -81  
19. 0  
20. -40  
21. 96  
22. -70  
23. 17  
24. -187  
25. -98  
26. 114  
27. Undefined  
28. -20  
29. 0  
30. 27  
31. 8  
32. -30  
33. -2  
34. -37  
35. 12  
36. -17  
37. -40  
38. 0  
39. -17  
40. -14  
41. 40  
42. -31  
43. Undefined  
44. 0  
45. 14  
46. -2  
47. -48  
48. 144 ft. below the surface  
49. 162 dollars  
50. -5 points  
51. -39°  
52. -48  
53. 3°  
54. $14,600  
55. 23°  
56. -7776  
57. 1  
58. 220  
59. -182  
60. 591  
61. -34  
62. -31  
63. -56  
64. -8
Review for Chapter Three Exam

Simplify each expression.
1. \(-6b + 3b\)
2. \(-13y - 8x - 5x\)
3. \(-5y + 6 - 5 + 2 + y - 3\)
4. \(-(-6 + 3y)\)
5. \(-9(7n + 7)\)
6. \(3(10z)\)
7. \(-(8xz - 5) + 9(5xz + 7)\)
8. \(-(-6m) + 3 + (-3n)\)
9. \(6 + 5(17 - 3m)\)

Find the perimeter or area of each figure as indicated.

10. Find the perimeter of the trapezoid.

![Trapezoid diagram]

11. Find the perimeter.

![Rectangle diagram with right angle]

12. Find the perimeter of the regular hexagon.

![Hexagon diagram with each side labeled]

Each side: 
7\(x + 9\) feet
13. Find the area of the square.

```
Each side: (21x) centimeters
```

Decide whether the given number is a solution of the given equation.

14. \( p + 3 = 9; \ 6 \)

15. \( 8y + 7(y - 4) = 47; \ 5 \)

Solve each equation.

16. \( 24 = f - 24 \)

17. \( -60 = -4n \)

18. \( a - 2 = 14 \)

19. \( -10 = b - 16 \)

20. \( 16 = -30 + n \)

21. \( -9b + 4 + 7b = -3b + 9 \)

22. \( -2x = -12 \)

23. \( 5r + 9 = 39 \)

24. \( -9m - 12 = -8m - 3 \)

25. \( 3(2z - 4) = 5(z + 5) \)

26. \( -16 = 4k \)

27. \( 11 = 6x - 7 \)

28. \( 14 - v = 28 \)

29. \( 186 = 14x + 18 \)

30. \( 6p + 14 = 5p + 13 \)

31. \( -7a + 3 + 8a = 11 - 22 \)

32. \( 8m + 4 = 9m - 3 \)

33. \( 9x + 3x = -96 \)

34. \( 3(y + 2) = 4(y - 3) \)
Translate each phrase into an algebraic expression.

35. The product of $-27$ and the sum of a number and $15$.

36. The quotient of $61$ and the product of a number and $-5$.

37. Eight times the sum of a number and $-15$.

38. The product of $11$ and a number, added to $10$.

Write each sentence as an equation.

39. The difference of negative $33$ and $17$ yields negative $50$.

40. The sum of $-42$ and $35$ gives $-7$.

41. Five times the difference of $-15$ and $6$ yields $-105$.

ANSWERS

1. $-3b$  
2. $-13y - 13x$  
3. $-4y$  
4. $6 - 3y$  
5. $-63n - 63$  
6. $30z$  
7. $37xz + 68$  
8. $6m + (-3n) + 3$

9. $91 - 15m$  
10. $78y$ meters  
11. $26x + 1$ meters  
12. $42x + 54$ feet  
13. $441x^2$ sq.cm  
14. Yes  
15. Yes  
16. $48$  
17. $15$  
18. $16$  
19. $6$  
20. $46$  
21. $5$  
22. $6$  
23. $6$  
24. $-9$  
25. $37$  
26. $-4$  
27. $3$

28. $-14$  
29. $12$  
30. $-1$  
31. $-14$  
32. $7$  
33. $-8$  
34. $18$  
35. $-27(x + 15)$  
36. $\frac{61}{-5x}$

37. $8(x + (-15))$  
38. $10 + 11x$  
39. $-33 - 17 = -50$  
40. $-42 + 35 = -7$  
41. $5(-15 - 6) = -105$
Review for Chapter Four Exam

Identify the numerator and the denominator of each fraction.
1. $\frac{7v}{11}$
2. $\frac{3}{7}$

Write a fraction to represent the shaded area of each figure.
3. 
   ![](image)
4. 
   ![](image)

Represent the shaded area in each figure group with an improper fraction or mixed number.
5. 
   ![](image)
6. 
   ![](image)
7. 
   ![](image)
8. 
   ![](image)

Write each fraction.
9. Of the 209 students at a college, 29 are sophomores. What fraction of the students are sophomores?
10. Of the 188 students at a private school, 57 are seniors. What fraction of the students are NOT seniors?

Write the mixed number as an improper fraction.
11. $\frac{3}{7}$
12. $\frac{7}{8}$
13. $\frac{251}{7}$

Write the improper fraction as a mixed or whole number.
14. $\frac{28}{3}$
15. $\frac{41}{5}$
Graph each fraction on the number line.

16. \( \frac{5}{8} \)

17. \( \frac{8}{5} \)

Write each fraction as an equivalent fraction with the given denominator.

18. \( \frac{1}{5} \); denominator of 15

19. \( \frac{11z}{12} \); denominator of 108

20. \( \frac{1}{9} \); denominator of 72

21. \( \frac{10}{8r} \); denominator of 24

Simplify.

22. \( \frac{25}{25} \)

23. \( \frac{-32}{1} \)

24. \( \frac{19}{-19} \)

25. \( \frac{-29}{29} \)

26. \( \frac{-36}{0} \)

27. \( \frac{-37}{-37} \)

28. \( \frac{0}{-11} \)

29. \( \frac{30}{40} \)

30. \( \frac{195}{210} \)

31. \( \frac{128}{131} \)

32. \( \frac{20k^3}{5k} \)

33. \( \frac{64p}{56p} \)

34. \( \frac{42rs^2t}{30r^2s^2t^3} \)

Write the prime factorization of each number.

35. 684

36. 66

37. 395

Find the LCD of each list of fractions.

38. \( \frac{4}{15}, \frac{5}{6} \)

39. \( \frac{5}{9}, \frac{9}{4} \)

Write each fraction in simplest form.

40. A company employs 468,000 employees worldwide. About 28,800 employees work in the United States. What fraction of the employees do NOT work in the United States?

41. There are 12,600 students at a university. If 7,200 are males, what fraction of the students are males?

42. A company employs 432,000 employees worldwide. About 21,600 employees work in the United States. What fraction of the employees work in the United States?
Perform the indicated operation(s). Write the answer in simplest form.

43. \( \frac{2x^3}{3} \cdot \frac{9}{z^2} \)  
44. \( \frac{3}{8} \cdot \frac{1}{7} \)  
45. \( \frac{5}{8} \div 9 \)  
46. \( \left( -\frac{5}{6} \right)^2 \cdot \frac{1}{5} \)  

47. \( \left( \frac{1}{5} \right)^3 \)  
48. \( -\frac{9a^3}{7} + 18a^3 \)  
49. \( \frac{6x}{11} \div \frac{4x}{19} \)  
50. \( \frac{6}{7} \div \left( \frac{28}{5} \cdot \frac{6}{98} \right) \)

51. \( \frac{7}{90} \)  
52. \( \frac{3}{4} \)  
53. \( \frac{13}{15} \)  
54. \( \frac{18}{5} \cdot \frac{5}{6} \)  

55. \( \frac{8}{20x} - \frac{17}{20x} \)  
56. \( \frac{5}{13x} + \frac{2}{13x} \)  
57. \( \frac{5}{21} - \frac{4}{21} \)  
58. \( \frac{5}{9} + \frac{-1}{13} \)

59. \( \frac{2}{5} + \frac{3}{25} \)  
60. \( \frac{x}{2} - \frac{14}{3} \)  
61. \( \frac{12m}{13} + \frac{8}{11} \)  
62. \( \frac{-7}{19} + \frac{7}{19} \)

63. \( -\frac{5}{2} \div \left( -\frac{5}{8} \cdot \frac{4}{2} \right) \)  
64. \( \left( \frac{2}{3} \cdot \frac{1}{2} \right) + \left( \frac{1}{2} \div \frac{3}{4} \right) \)  
65. \( \frac{4}{3} + \left( \frac{5}{3} \right)^2 - \frac{3}{8} \)  
66. \( (8) \cdot \left( \frac{3}{14} \right) \)

67. \( 1\frac{4}{5} \cdot \frac{1}{6} \)  
68. \( 5\frac{2}{7} \div 1\frac{2}{5} \)  
69. \( 12\frac{1}{2} + 20\frac{1}{9} + \frac{4}{9} \)  
70. \( 15\frac{5}{16} - 6\frac{3}{8} \)

71. Find the quotient of \( \frac{3}{5} \) and \( \frac{8}{15} \).  
72. Find the difference in \( \frac{2}{3} \) and \( \frac{4}{5} \).

73. Find the sum of \( \frac{1}{5} \) and \( \frac{1}{5} \).  
74. Find the product of \( \frac{1}{5} \) and \( \frac{1}{5} \).
Evaluate each expression for the given values. Write the answer in simplest form.

75. \( x + y \); \( x = \frac{11}{4} \) and \( y = \frac{77}{4} \)

76. \( xy \); \( x = \frac{9}{7} \) and \( y = \frac{7}{45} \)

77. \( x + y \); \( x = \frac{-5}{11} \) and \( y = \frac{-2}{11} \)

78. \( x - y \); \( x = \frac{4}{5} \) and \( y = \frac{1}{2} \)

79. \( x + y \); \( x = \frac{8}{15} \) and \( y = \frac{12}{5} \)

80. \( x + y \); \( x = \frac{-7}{15} \) and \( y = \frac{1}{10} \)

81. \( 2x - y \); \( x = \frac{5}{8} \) and \( y = \frac{-5}{6} \)

82. \( \frac{x}{y} \); \( x = \frac{-1}{3} \) and \( y = \frac{-1}{6} \)

Solve. Write the answer in simplest form.

83. How many \( \frac{5}{11} \) pound boxes of cereal can be made from 9,185 pounds of cereal?

84. Find the area of the rectangle.

\[
\begin{array}{c}
A \\
B
\end{array}
\quad A = \frac{4}{9} \text{ foot}, \quad B = \frac{1}{2} \text{ foot}
\]

85. Find the perimeter of the scalene triangle, a triangle with all three sides a different length.

\[
\begin{array}{c}
\frac{3}{20} \text{ meter} \\
\frac{3}{10} \text{ meter} \\
\frac{9}{20} \text{ meter}
\end{array}
\]
86. The total length of a bicycle race is $\frac{7}{10}$ of a mile. Sunee has completed $\frac{3}{5}$ of a mile. How much does she have left to complete?

87. The circle graph shows the fraction of books read by grades one through five. What fraction of books was NOT read by the fourth and first grades?

![Circle graph showing fractions for each grade.]

88. Lee read $\frac{7}{10}$ of a book one week, $\frac{4}{15}$ the next week, and $\frac{1}{95}$ the third week. How much of the book was read?

89. Find the perimeter of the triangle.

![Triangle with side lengths 3 feet, 10 feet, and 12 feet.]

90. Find the perimeter of the square.

![Square with side length 9.9 inches.]

91. Is $\frac{2}{45}$ a solution for $5x = \frac{45}{9}$?

92. $x - \frac{7}{9} = -\frac{2}{3}$

93. $x + \frac{1}{10} = \frac{9}{10}$
\[
94. \quad 4t + \frac{1}{6} - 3t = \frac{3}{4} \\
95. \quad t + \frac{3}{10} = \frac{3}{5}
\]

\[
96. \quad \frac{1}{2}k = -10 \\
97. \quad -6 = -\frac{a}{6}
\]

\[
98. \quad \frac{1}{4}a - \frac{1}{4} = -6 \\
99. \quad \frac{a}{4} - \frac{1}{4} = -6
\]

\section*{ANSWERS}

1. Numerator is 7v, denominator is 11  
2. Numerator is 3, denominator is 7  
3. \(\frac{5}{8}\)  
4. \(\frac{3}{4}\)  
5. \(\frac{5}{4}\) or \(-\frac{1}{4}\)

6. \(\frac{5}{3}\) or \(\frac{2}{3}\)  
7. \(\frac{11}{6}\) or \(\frac{5}{6}\)  
8. \(\frac{7}{4}\) or \(-\frac{1}{4}\)  
9. \(\frac{29}{209}\)  
10. \(\frac{131}{188}\)  
11. \(\frac{52}{7}\)  
12. \(\frac{55}{8}\)  
13. \(\frac{1763}{7}\)

14. \(\frac{9}{3}\)  
15. \(\frac{8}{5}\)  
16. \(\frac{1}{2}\)  
17. \(\frac{3s}{15x}\)  
18. \(\frac{99z}{108}\)  
19. \(\frac{8}{72}\)  
20. \(\frac{30}{24r}\)  
21. \(\frac{1}{7}\)

22. 1  
23. \(-32\)  
24. \(-1\)  
25. \(-1\)  
26. Undefined  
27. 1  
28. 0  
29. \(\frac{3}{4}\)  
30. \(\frac{13}{14}\)  
31. \(\frac{128}{131}\)  
32. \(4k^2\)

33. \(\frac{8}{7}\)  
34. \(\frac{7}{5r^2st^2}\)  
35. \(2^2\cdot3^2\cdot19\)  
36. \(2\cdot3\cdot11\)  
37. \(5\cdot79\)  
38. \(30\)  
39. \(36\)  
40. \(\frac{61}{65}\)  
41. \(\frac{4}{7}\)

42. \(\frac{1}{20}\)  
43. \(6z\)  
44. \(\frac{3}{56}\)  
45. \(\frac{5}{8}\)  
46. \(\frac{5}{36}\)  
47. \(\frac{1}{125}\)  
48. \(-\frac{1}{14}\)  
49. \(\frac{57}{22}\)  
50. \(\frac{5}{2}\)  
51. \(\frac{56}{9}\)

52. \(\frac{3}{4}\)  
53. \(\frac{41}{45}\)  
54. \(\frac{29}{18}\)  
55. \(-\frac{9}{20x}\)  
56. \(\frac{7}{13x}\)  
57. \(\frac{1}{21}\)  
58. \(\frac{56}{117}\)  
59. \(\frac{13}{25}\)

60. \(\frac{3x-28}{6}\)  
61. \(\frac{132m+104}{143}\)  
62. 0  
63. 2  
64. 1  
65. \(\frac{53}{72}\)  
66. \(\frac{24}{7}\)  
67. \(\frac{3}{10}\)  
68. \(\frac{38}{49}\)

69. \(\frac{33}{18}\)  
70. \(\frac{15}{16}\)  
71. \(\frac{9}{8}\)  
72. \(-\frac{2}{15}\)  
73. \(\frac{3}{5}\)  
74. \(\frac{1}{25}\)  
75. \(\frac{1}{7}\)  
76. \(\frac{1}{5}\)  
77. \(-\frac{7}{11}\)  
78. \(\frac{3}{10}\)

79. \(\frac{2}{9}\)  
80. \(-\frac{11}{30}\)  
81. \(\frac{25}{12}\)  
82. 2  
83. \(20,207\)  
84. \(\frac{2}{9}\) square foot  
85. \(\frac{9}{10}\) m  
86. \(\frac{1}{10}\) mile

87. \(\frac{31}{50}\)  
88. \(\frac{557}{570}\)  
89. \(\frac{25}{36}\) foot  
90. \(\frac{39}{5}\) in  
91. no  
92. \(\{1\}\)  
93. \(\{4\}\)  
94. \(\{7\}\)  
95. \(\{\frac{3}{10}\}\)

96. \(\{20\}\)  
97. \(\{36\}\)  
98. \(-\{23\}\)  
99. \(-\{23\}\)
Review for Chapter Five Exam

Write the decimal in words.
1. 4.00927
2. 4.79

Write the decimal in numbers
3. One hundred and two-tenths
4. In his qualifying time trial, a race car driver averages a speed of one hundred seventy-three and nineteen thousandths mph.

Write the decimal as a fraction or mixed number in lowest terms.
5. $697.8102$
6. 0.5

Insert <, >, or = between each pair of numbers to form a true statement.
7. $654.901 \underline{__} 654.910$
8. $223.3901 \underline{__} 223.3109$
9. $0.3 \underline{__} 0.0631$
10. $0.933 \underline{__} 0.934$
11. $\frac{65}{12} \underline{__} 5.417$

Round the decimal to the given place value.
12. 8.74803 (nearest thousandth)
13. 76.2 (nearest ten)
14. 29.1064 (nearest hundredth)

Round the money amount to the specified place.
15. $0.1043$ (nearest cent)
16. $99.73$ (nearest dollar)

Perform the indicated operation.
17. \[
\begin{array}{c}
264.362 \\
17.901 \\
+ 4.626
\end{array}
\underline{+ \begin{array}{c}
5.91 \\
2.23 \\
+ 14.76
\end{array}}
\]
18. $5.91$
19. $0.405 \times 0.3$
20. $53.135 \div (-1,000)$
21. $8.531 - 6.479$
22. $-0.2 \div (-0.2)$
23. \(-7.8 - 2.7\)  
24. \(565.35 \div (-100)\)  
25. \((-5.32)(-3.6)\)

26. \(5.9 \times 0.1\)  
27. \(5.1 \times 1,000\)  
28. \(-1 \div 0.02\)

29. \((242.54)(10)\)  
30. \(8.76 \div (-12)\)  
31. \(-0.86 \div 10\)

Evaluate the given expression using the given values of the variables.

32. \(y - x + z; \ x = 7.6, \ y = 9, \ z = 0.86\) 
33. \(y + 9; \ y = 0.882\)

34. \(x + z; \ x = 5.3, \ z = 0.73\) 
35. \(-2.7y; \ y = 4\)

36. \(-5y; \ y = -2.6\) 
37. \(8.8 \div x; \ x = 14.08\)

Determine whether the given value is a solution in the given equation.

38. Is 15.6 a solution for the equation \(28.3 - z = 12.7\)?

39. Is 21 a solution for the equation \(32.4 - y = 11.4\)?

40. Is \(-6\) a solution for \(4.5x = -27\)?

41. Is 0.06 a solution for \(6.6x = 3.96\)?

42. Is 5.589 a solution for \(\frac{x}{9} = 6.21\)?

43. Is 33.44 a solution for \(\frac{x}{3.8} = 8.8\)?

Simplify by combining like terms.

44. \(-9.5 + 9.7x - 6.5 - 3.9x\)  
45. \(9.0 - 14.8x - 15.5x + 12.3\)
Solve the equation.

46. \(1.2x + 3.2 = 0.5x + 2.15\)  
47. \(4x - 5.8 = 2x + 10\)  
48. \(-12.2 = -6.1c\)

Solve.

49. Last year, Susan’s average credit card bill was $124.43. Last month, her credit card bill was $166.79. How much above last year's average was last month's bill?

50. A printing company charges $2.3715 for each party invitation it prints. What would be the cost (before tax) for printing 400 party invitations? (Round the answer to the nearest cent.)

51. A meter is a unit of measure in the metric system that is approximately equal to 39.37 inches. Gina is 2.05 meters tall. What is her approximate height in inches? (Round to the nearest hundredth.)

52. A farmer sells 10,000 bushels of cotton for $2.90 a bushel. How much did the farmer receive?

53. Madison, Amanda, and Steven enter a 49.1-mile bicycle team relay race. They complete the course in 2.22 hours. What was their average speed on the course? (Round to the nearest tenth.)

54. There are approximately 2.54 centimeters in 1 inch. How many inches are there in 130 centimeters? (Round to the nearest hundredth.)

55. In a practice run, a race car driver's speed is clocked at 138.555 mph at the end of his first lap, and at 166.441 mph at the end of the next lap. How much faster was he driving at the end of the second lap?
56. Find the height of the cliff. Round to the nearest hundredth meter.

![Diagram of a cliff with a 43 m and 21 m side and a question mark for the height]

57. A rectangular plot of land is 74 yards by 82 yards. Find the length of the diagonal to the nearest tenth yard.

![Diagram of a rectangular plot with 74 yards and 82 yards sides and a question mark for the diagonal]

58. One end guy wire is attached to the top of a 27-foot pole and the other end is anchored into the ground 22 feet from the base of the pole. Find the length of the guy wire. Round to the nearest tenth foot.

![Diagram of a pole with a guy wire and a 27 feet and 22 feet side and a question mark for the guy wire length]

59. Give the decimal number for \( \pi \) rounded to the nearest hundredth.

Find the exact circumference of the circle.

60. [Diagram of a circle with a radius of 5.9 m]

61. [Diagram of a circle with a diameter of 18.5 in]
Approximate the circumference of the circle using 3.14 for \( \pi \).

62. A windmill is constructed having blades 10.6 feet long. The length of the blades will be the radius of the circle which the windmill will sweep. What is the circumference of the circle which the windmill will sweep?

Divide and round the quotient as indicated.

63. Divide 6.51 by 0.059 and round the quotient to the nearest hundredth.

64. Divide 132.25 by 5.1 and round the quotient to the nearest hundredth.

65. Divide 1068.18 by 0.026 and round the quotient to the nearest thousandth.

Write the fraction as a decimal. Round to the nearest thousandth, if necessary.

66. \( \frac{13}{38} \)

67. An organization surveys its members and finds that \( \frac{59}{82} \) of them play a musical instrument. Write this fraction as a decimal. Round to the nearest thousandth, if necessary.

Arrange in order from smallest to largest.

68. 0.05, 0.04, 0.045, 0.054

69. \( \frac{3}{4}, \frac{5}{6}, \frac{4}{5}, 0.95 \)

Find the area of the figure. Round to the nearest thousandth, if necessary.

70.

71.
Find the square root.

72. \( \sqrt{36} \)  
73. \( \sqrt{1 \over 100} \)  
74. \( \sqrt{4 \over 225} \)

Approximate the square root. Round to the nearest thousandth.

75. \( \sqrt{134} \)  
76. \( \sqrt{680} \)

Using the given lengths of two sides of a right triangle, find the length of the side not given. Round to the nearest thousandth.

77. leg = 3 m, leg = 1 m  
78. leg = 9 in, hypotenuse = 15 in

\[ \begin{align*}
41 \text{ cm} \\
40 \text{ cm}
\end{align*} \]

ANSWERS

1. four and nine hundred twenty-seven hundred-thousandths  
2. four and seventy-nine hundredths
3. 100.2  
4. 173.019 mph  
5. 697 \( \frac{4051}{5000} \)  
6. \( \frac{1}{2} \)  
7. <  
8. >  
9. >  
10. <  
11. <  
12. 8.748

13. 80  
14. 29.1  
15. 0.10  
16. $100  
17. 286.889  
18. 22.90  
19. 0.1215  
20. –0.053135

21. 2.052  
22. 1  
23. –10.5  
24. –5.6535  
25. 20.5352  
26. 0.59  
27. 5.100  
28. –50

29. 2425.4  
30. –0.73  
31. –0.086  
32. 2.26  
33. 0.098  
34. 6.03  
35. –10.8  
36. 13  
37. 0.625

38. Yes  
39. Yes  
40. Yes  
41. No  
42. No  
43. Yes  
44. 5.8x – 16  
45. –30.3x + 21.3

46. –1.5  
47. 1.9  
48. 2  
49. $42.36  
50. $948.60  
51. 80.71 in  
52. $29,000.00  
53. 22.1 mph

54. 51.18 in  
55. 27.886 mph  
56. 37.52 m  
57. 110.5 yards  
58. 34.8 feet  
59. 3.14  
60. 11.8 \( \pi \) m

61. 18.5 \( \pi \) in  
62. 66.568 feet  
63. 110.34  
64. 25.93  
65. 41,083.846  
66. 0.342  
67. 0.72

68. 0.04, 0.045, 0.05, 0.054  
69. \( \frac{3}{4}, \frac{4}{5}, \frac{5}{6}, 0.95 \)  
70. 960 ft\(^2\)  
71. 598.5 yd\(^2\)  
72. 6  
73. \( \frac{1}{10} \)

74. \( \frac{2}{15} \)  
75. 11.576  
76. 26.077  
77. 3.162 m  
78. 12 in  
79. 9 cm
Review for Real Number Supplement

Graph the number on the real number line.

1. \(-4.7\)
   
   \[ \bullet \bullet \bullet \bullet \bullet \bullet \bullet \bullet \bullet \bullet \bullet \]

2. \(\sqrt{11}\)
   
   \[ \bullet \bullet \bullet \bullet \bullet \bullet \bullet \bullet \bullet \bullet \bullet \]

3. \(-\sqrt{13}\)
   
   \[ \bullet \bullet \bullet \bullet \bullet \bullet \bullet \bullet \bullet \bullet \bullet \]

4. \(3 \frac{7}{8}\)
   
   \[ \bullet \bullet \bullet \bullet \bullet \bullet \bullet \bullet \bullet \bullet \bullet \]

Graph the inequality.

5. \(x > -2\)
   
   \[ \bullet \bullet \bullet \bullet \bullet \bullet \bullet \bullet \bullet \bullet \bullet \]

6. \(-6 < x < -1\)
   
   \[ \bullet \bullet \bullet \bullet \bullet \bullet \bullet \bullet \bullet \bullet \bullet \]

7. \(x \leq 4\)
   
   \[ \bullet \bullet \bullet \bullet \bullet \bullet \bullet \bullet \bullet \bullet \bullet \]

Identify the set(s) to which each of the numbers belongs. The sets include the natural numbers, whole numbers, integers, rational numbers, irrational numbers, and real numbers.

8. \(\frac{3}{7}\)
   
   \[ \text{natural numbers, rational numbers, real numbers} \]

9. \(\frac{9}{\sqrt{25}}\)
   
   \[ \text{rational numbers, real numbers} \]

10. \(7.322\ldots\)
    
    \[ \text{rational numbers, real numbers} \]

11. \(\frac{15}{7}\)
    
    \[ \text{rational numbers, real numbers} \]

12. \(-\sqrt{15}\)
    
    \[ \text{irrational numbers, real numbers} \]

13. \(-7\)
    
    \[ \text{integers, rational numbers, real numbers} \]

14. \(5.363363336\ldots\)
    
    \[ \text{rational numbers, real numbers} \]

15. \(\sqrt{196}\)
    
    \[ \text{natural numbers, whole numbers, integers, rational numbers, real numbers} \]
ANSWERS

1. rational, real
2. rational, real
3. rational, real
4. rational, real
5. rational, real
6. rational, real
7. rational, real
8. rational, real
9. rational, real
10. rational, real
11. rational, real
12. irrational, real
13. integer, rational, real
14. irrational, real
15. natural, whole, integer, rational, real
Review for Chapter Six Exam

Write each ratio using fractional notation. Do not simplify.

1. 5.9 to 1.4

2. \( \frac{2}{5} \) to \( \frac{5}{6} \)

Write each ratio as a ratio of whole numbers using fractional notation. Write the fraction in simplest form.

3. According to an organization’s membership list, it has 2750 members who have children and 2000 members who are childless. What is the ratio of members who have children to members who are childless?

4. Find the ratio of the width to the perimeter of the rectangular dog run sketched below.

width = 11 yards
length = 16 yards

Find each ratio of the corresponding sides of the given similar triangles. Write the ratio in simplest form.

5.

6.

Write each rate as a fraction in simplest form.

7. 11 cars for 66 people

8. 77 printers for 84 computers

Write each rate as a unit rate.

9. 450 miles on 10 gallons of gas

10. 10 cents for 5 marbles
Find the unit price.

11. $41.60 for 4 cassette tapes

12. Find which is the better buy (lower cost per ounce) by finding each unit price rounded to three decimal places if necessary. Assume that different sizes of the same brand are being compared.
   Shampoo:
   $6.72 for 12 ounces
   $9.90 for 18 ounces

Write each sentence as a proportion.

13. 5 diamonds is to 11 rubies as 15 diamonds is to 33 rubies
14. $42 is to 35 bottles as $30 is to 25 bottles

Write ‘True’ if the statement is true and ‘False’ is the statement is false.

15. \(\frac{1}{8} = \frac{7}{4}\)
16. \(\frac{24}{18} = \frac{4}{3}\)

Solve each proportion for the given variable. Round the solution where indicated.

17. \(\frac{x}{57} = \frac{5}{19}\)
18. \(\frac{1}{6} = \frac{x}{56}\)
19. \(\frac{16}{x} = \frac{8}{3}\)
20. \(\frac{61}{3} = \frac{7}{z}\) Round to the nearest thousandth.

Given that the pairs of triangles are similar, find the unknown length \(x\).

21. \[\begin{array}{c}
0.25 \\
0.11 \\
x \\
0.055
\end{array}\]

22. \[\begin{array}{c}
50 \\
48 \\
x
\end{array}\]
Solve.

23. On an architect’s blueprint, 1 inch corresponds to 12 feet. Find the length of a wall represented by a line $6\frac{1}{4}$ inches long on the blueprint. Round to the nearest tenth if necessary.

24. A bag of fertilizer covers 2000 square feet of lawn. Find how many bags of fertilizer should be purchased to cover a rectangular lawn 110 feet by 140 feet.

25. A fire fighter needs to estimate the height of a burning building. She estimates the length of her shadow to be 8 feet long and the length of the building’s shadow to be 72 feet long. Find the height of the building if the fire fighter is $5\frac{1}{3}$ feet tall. Round to the nearest tenth if necessary.

26. On an architect’s blueprint, 1 inch corresponds to 6 feet. If an exterior wall is 8 feet long, find how long the blueprint measurement should be. Write answer as a mixed number if necessary.

27. If a flagpole 12 feet tall casts a shadow that is 16 feet long, find the length of the shadow cast by an antenna which is 30 feet tall. Round to the nearest tenth if necessary.

**Answers**

1. $5.9 \overline{1}$
2. $6\frac{2}{5}$
3. $\frac{11}{8}$
4. $\frac{11}{54}$
5. $\frac{3}{5}$
6. $\frac{1}{2}$
7. $\frac{1\text{ car}}{6\text{ people}}$
8. $\frac{11\text{ printers}}{12\text{ computers}}$
9. 45 miles/gallon
10. 2 cents/marble
11. $10.40/$cassette tape
12. $9.90$ for 18 ounces
13. $\frac{5}{11} = \frac{15}{33}$
14. $\frac{42}{35} = \frac{30}{25}$
15. False
16. True
17. 15
18. $\frac{9}{3}$
19. $\frac{2}{3}$
20. 0.344
21. 0.125
22. $x = 14$
23. 75 feet
24. 8 bags
25. 48 feet
26. $1\frac{1}{3}$ inches
27. 40 feet
Review for Chapter Seven Exam

Solve.

1. In a survey of 100 people, 4 preferred relish on their hot dogs. What percent preferred relish?

2. A dart player made 89 bull’s eyes out of 100 attempted throws. What percent of the throws was NOT bull’s eyes?

3. A basketball player made 30 out of 100 attempted free throws. What percent of free throws was made?

Write each percent as a decimal.

4. 0.1%

5. 0.39%

6. 170%

Write each decimal as a percent.

7. 0.00554

8. 0.119

9. The Sayed family saves 0.1217 of their income. Write this decimal as a percent.

Write each percent as a fraction or mixed number in simplest form.

10. 276%

11. \(185\frac{5}{7}\%\)

12. \(66\frac{2}{3}\%\)

Write each fraction or mixed number as a percent.

13. \(\frac{29}{50}\)

14. \(\frac{5}{12}\)

15. \(\frac{7}{15}\) Round to the nearest hundredth percent.
Solve. Round decimals to the nearest thousandth and percents to the nearest tenth of a percent.

16. Write the equivalent decimal and percent for $\frac{4}{75}$.

17. Write the equivalent fraction and percent for 0.12.

18. Write the equivalent fraction and decimal for 50%.

Translate each question into an equation. Do not solve.

19. What percent of 1 is 97?

20. What number is 53% of 37?

21. 13.6 is what percent of 36?

22. 52% of 92.2 is what number?

Solve.

23. 10% of 300 is what number?

24. 2 is what percent of 16?

25. 15 is 6% of what number?

26. 8.0% of 2300 is what number?

27. 71 is 0.71% of what number?

28. 132 is what percent of 66?

Solve. If necessary, round percents to the nearest tenth and all other answers to the nearest whole.

29. The Tragord family paid 17% of the purchase price of a $294,000 home as a down payment. Determine the amount of the down payment.

30. In a recent survey of 24 people, 6 said that their favorite color of car was blue. What percent of the people surveyed liked blue cars?

31. An inspector found 12 defective cameras during an inspection. If this is 0.012% of the total number of cameras inspected, how many cameras were inspected?

ANSWERS

1. 4%  2. 11%  3. 30%  4. 0.001  5. 0.0039  6. 1.7  7. 0.554%  8. 11.9%  9. 12.17%
10. $\frac{29}{25}$  11. $\frac{6}{7}$  12. $\frac{2}{3}$  13. 58%  14. $\frac{2}{3}$%  15. 46.67%  16. 0.053; 5.3%  17. $\frac{3}{25}$; 12%
18. $\frac{1}{2}$; 0.5  19. $x \cdot 1 = 97$  20. $x = 53\% \cdot 37$  21. $13.6 = x \cdot 36$  22. $52\% \cdot 92.2 = x$  23. 30  24. 12.5%  25. 250  26. 184  27. 10,000  28. 200%  29. $49,980$  30. 25%  31. 100,000 cameras
Review for Chapter Nine Exam

Identify each figure as a line, a ray, a line segment, or an angle. Then name the figure using the given points.

1. 

2. 

3. 

4. 

Find the measure of the angle.

5. $\angle BGC$  
6. $\angle VZW$  
7. $\angle EGB$  
8. $\angle BGE$

Classify each angle as acute, right, obtuse, or straight.

9. 

10. $70^\circ$

11. The measure of an obtuse angle is __________________________.
Review for Chapter Nine Exam

Find the indicated angle.

12. Find the complement of 49°  
13. Find the supplement of 16°

14. Identify the pair or pairs of complementary angles.

Find the measure of the unknown angles. Figures are not drawn to scale.

15. Find the measure of ∠x.

16. Find the measure of ∠h.

17. Find the measure of ∠x.
Convert as indicated.

18. 192 inches to feet  
19. 40 km to meters  
20. 20 yards to feet

21. 9.7 miles to feet  
22. 95.7 dm to meters  
23. 138 oz to pounds

24. 251.3 cm to millimeters  
25. 37 tons to pounds  
26. 59 kg to grams

27. 6.5 lb to ounces  
28. 118 kg to grams  
29. 45 qt to gallons

30. 351 g to milligrams  
31. $\frac{7}{2}$ pt to cups  
32. $2\frac{1}{2}$ gal to quarts

33. 380 L to centiliter  
34. 8800 ml to liters  
35. 89 ml to deciliter

Find the perimeter of each figure.

36.  
37.  
38.  

Solve.

39. The sides of a triangle are 881 ft, 411 ft, and 652 ft. Find its perimeter.

40. A regular octagon has a side length of 7 m. Find its perimeter.

41. A rectangular room measures 12 ft by 13 ft. Find the cost of installing a strip of wallpaper around the room if the wallpaper costs $0.52 per foot.
**Find the circumference of each circle.**

42. ![Circle with radius 72 m](image)
   Approximate the circumference using \( \pi = 3.14 \).

43. ![Circle with radius 25 cm](image)
   Find exact circumference.

44. ![Circle with radius 23 m](image)
   Approximate the circumference using \( \pi = 3.14 \).

**Find the area.**

45. Find the area of the rectangle.
   ![Rectangle with dimensions 9 ft by 39 ft](image)

46. Find the area of a circle when its circumference is 17.2 \( \pi \) units.

47. Find the area of the circle. Use 3.14 for \( \pi \). Round results to two decimal places if necessary.
   ![Circle with radius 12.5 ft](image)

**Solve.**

48. A drapery panel measures 6 ft by 9 ft. Find the number of square feet of material needed for four panels.
Find the volume of the solid.

49. Square-based pyramid

![Diagram of a square-based pyramid]

50. Use 3.14 as the approximate value for \( \pi \). Round results to the nearest hundredth if necessary.

![Diagram of a sphere with diameter of 2.1 units]

51. Use 3.14 as the approximate value for \( \pi \). Round results to the nearest tenth, if necessary.

![Diagram of a cylinder]

Solve the problem.

52. Find the volume of a box in the shape of a cube that is 8 inches on each side.

53. Find the volume of a box 3 in. x 7 in. x 9 in.

54. A paperweight is in the shape of a square-based pyramid 14 centimeters tall. If an edge of the base is 7 centimeters, find the volume of the pyramid.
Review for Chapter Nine Exam

ANSWERS

1. ray;  
2. angle;  \( \angle B \)  
3. angle;  \( \angle B \)  
4. ray;  \( VW \)  
5. 40°  
6. 25°  
7. 100°  
8. 100°  
9. Right  
10. Acute  
11. between 90° and 180°  
12. 41°  
13. 164°  
14.  \( \angle ABD \) and  \( \angle FBC \);  \( \angle DBE \) and  \( \angle EBF \)  
15. 42°  
16. 156°  
17. 72°  
18. 16  
19. 40,000 m  
20. 60  
21. 51,216  
22. 9.57 m  
23.  \( \frac{5}{8} \) lb  
24. 2,513 mm  
25. 74,000 lb  
26. 59,000 grams  
27. 104 oz  
28. 118,000 grams  
29. \( \frac{1}{4} \) gal  
30. 351,000 milligrams  
31. 15 c  
32. 10 qt  
33. 38,000 cl  
34. 8.8 L  
35. 0.89 dl  
36. 19.6 yd  
37. 22 mi  
38. 26 m  
39. 1,944 ft  
40. 56 m  
41. $26.00  
42. 452.16 mi  
43. 50 \( \pi \) cm  
44. 72.22 mi  
45. 351 sq. ft  
46. 73.96 \( \pi \) sq. units  
47. 490.63 ft\(^2\)  
48. 216 sq. ft  
49. \( \frac{1}{3} \) cu. in.  
50. 4.85 cu. units  
51. 274.8 cu. ft  
52. 512 cu. in.  
53. 189 cu. in.  
54. \( \frac{28}{3} \) cu. cm
### Final Exam Review

<table>
<thead>
<tr>
<th>#</th>
<th>Problem</th>
<th>Section</th>
<th>Answers</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Graph 3 on the number line.</td>
<td>1.2</td>
<td><img src="image" alt="Number Line" /></td>
</tr>
<tr>
<td>2</td>
<td>On the number line, which number is 6 units to the left of 11?</td>
<td>1.2</td>
<td>5</td>
</tr>
<tr>
<td>3</td>
<td>Place the correct symbol, <code>&lt;</code>, <code>=</code>, or <code>&gt;</code>, between these two numbers: 6409, 6490</td>
<td>1.2</td>
<td><code>&lt;</code></td>
</tr>
<tr>
<td>4</td>
<td>Write the given numbers in order from smallest to largest.</td>
<td>1.2</td>
<td>046, 438, 483, 492, 497</td>
</tr>
<tr>
<td>5</td>
<td>Write 1,042,023 in words.</td>
<td>1.2</td>
<td>One million forty-two thousand twenty-three</td>
</tr>
<tr>
<td>6</td>
<td>Write two hundred forty-seven thousand sixty-three in standard form.</td>
<td>1.2</td>
<td>247,063</td>
</tr>
<tr>
<td>7</td>
<td>Write 307,420 in expanded form.</td>
<td>1.2</td>
<td>300,000+7000+400+20</td>
</tr>
<tr>
<td>8</td>
<td>According to the 1990 census, the population of Nebraska is 1,578,385, the population of Nevada is 1,201,833, the population of New Hampshire is 1,109,252, and the population of New Mexico is 1,515,069. Which of the four states has the greatest population?</td>
<td>1.2</td>
<td>Nebraska</td>
</tr>
<tr>
<td>9</td>
<td>Add: 314,892 + 77,413 + 109,842</td>
<td>1.3</td>
<td>502,147</td>
</tr>
<tr>
<td>10</td>
<td>Find the sum of 923,411 and 21,327.</td>
<td>1.3</td>
<td>944,738</td>
</tr>
<tr>
<td>11</td>
<td>Evaluate $a + b + c$ when $a = 2,307$, $b = 9,765$, and $c = 5,739$.</td>
<td>1.3</td>
<td>17,811</td>
</tr>
<tr>
<td>12</td>
<td>Subtract: 35,021 - 9,086</td>
<td>1.3</td>
<td>25,935</td>
</tr>
<tr>
<td>13</td>
<td>Find 92,061 decreased by 29,432.</td>
<td>1.3</td>
<td>62,629</td>
</tr>
<tr>
<td>14</td>
<td>You have a checking account balance of $1,509. You then wrote checks for $179, $413, and $27. Find the new checking account balance.</td>
<td>1.3</td>
<td>$890</td>
</tr>
<tr>
<td>15</td>
<td>Multiply: 975 · 4</td>
<td>1.6</td>
<td>3,900</td>
</tr>
<tr>
<td>16</td>
<td>Multiply: 796 × 309</td>
<td>1.6</td>
<td>245,964</td>
</tr>
<tr>
<td>17</td>
<td>What is the product of 300, 5, 70, and 0?</td>
<td>1.6</td>
<td>0</td>
</tr>
<tr>
<td>18</td>
<td>Evaluate $2st$ when $s = 45$ and $t = 67$.</td>
<td>1.6</td>
<td>6,030</td>
</tr>
<tr>
<td>19</td>
<td>Write $a · a · a · b · b · b$ in exponential form.</td>
<td>1.8</td>
<td>$a^4b^3$</td>
</tr>
<tr>
<td>20</td>
<td>Evaluate $6 · 2^3 · 3^2$.</td>
<td>1.8</td>
<td>432</td>
</tr>
<tr>
<td>21</td>
<td>Find the cube of 9.</td>
<td>1.8</td>
<td>729</td>
</tr>
<tr>
<td>22</td>
<td>Evaluate $a^4b^3$ when $a = 2$ and $b = 3$.</td>
<td>1.8</td>
<td>432</td>
</tr>
<tr>
<td></td>
<td>Question</td>
<td></td>
<td>Answer</td>
</tr>
<tr>
<td>---</td>
<td>-------------------------------------------------------------------------</td>
<td>---</td>
<td>----------</td>
</tr>
<tr>
<td>23</td>
<td>Divide: (6 \div 38,029)</td>
<td>1.7</td>
<td>6338 r1</td>
</tr>
<tr>
<td>24</td>
<td>Divide: (4,207 \div 309)</td>
<td>1.7</td>
<td>13 r190</td>
</tr>
<tr>
<td>25</td>
<td>What is the quotient of 3096 and 8?</td>
<td>1.7</td>
<td>387</td>
</tr>
<tr>
<td>26</td>
<td>Evaluate (\frac{x}{y}) when (x = 23,680) and (y = 8).</td>
<td>1.7</td>
<td>2,960</td>
</tr>
<tr>
<td>27</td>
<td>Find all the factors of 56.</td>
<td>4.2</td>
<td>1, 2, 4, 7, 8, 14, 28, 56</td>
</tr>
<tr>
<td>28</td>
<td>Find the prime factorization of 150.</td>
<td>4.2</td>
<td>2 (\cdot) 3 (\cdot) 5 (\cdot)</td>
</tr>
<tr>
<td>29</td>
<td>A consumer makes a down payment of $1,500 on a computer system costing $5,820. The balance is to be repaid in 24 equal monthly payments. What is the monthly payment?</td>
<td>1.6</td>
<td>$180</td>
</tr>
<tr>
<td>30</td>
<td>Round 549,601 to the nearest thousand.</td>
<td>1.5</td>
<td>550,000</td>
</tr>
<tr>
<td>31</td>
<td>Estimate the sum of 924, 736, 182, and 507.</td>
<td>1.5</td>
<td>2,300</td>
</tr>
<tr>
<td>32</td>
<td>Estimate the difference between 65,271 and 24,903.</td>
<td>1.5</td>
<td>50,000</td>
</tr>
<tr>
<td>33</td>
<td>Estimate the product of 5,549 and 33.</td>
<td>1.5</td>
<td>180,000</td>
</tr>
<tr>
<td>34</td>
<td>Estimate the quotient of 37,052 and 41.</td>
<td>1.5</td>
<td>1,000</td>
</tr>
<tr>
<td>35</td>
<td>The coastline of the United States measures 12,383 statute miles. Find the coastline of the United States to the nearest hundred statute miles.</td>
<td>1.5</td>
<td>12,400 statute miles</td>
</tr>
<tr>
<td>36</td>
<td>Simplify: (12 - 3(10 - 2) \div 6)</td>
<td>1.8</td>
<td>8</td>
</tr>
<tr>
<td>37</td>
<td>Simplify: (2^2 + 3(6 - 1) - 3)</td>
<td>1.8</td>
<td>16</td>
</tr>
<tr>
<td>38</td>
<td>Evaluate (2x + (x - y)^3) when (x = 9) and (y = 7).</td>
<td>1.8</td>
<td>26</td>
</tr>
<tr>
<td>39</td>
<td>Graph (x) on the number line when (x = -2).</td>
<td>2.1</td>
<td></td>
</tr>
<tr>
<td>40</td>
<td>On the number line, which number is 2 units to the left of (-3)?</td>
<td>2.1</td>
<td>-5</td>
</tr>
<tr>
<td>41</td>
<td>Place the correct symbol, (&lt;) or (&gt;), between the two numbers. (-36) (-49)</td>
<td>2.1</td>
<td>&gt;</td>
</tr>
<tr>
<td>42</td>
<td>Write the given numbers in order from smallest to largest. (10, -11, -4, 7, -9)</td>
<td>2.1</td>
<td>-11, -9, -4, 7, 10</td>
</tr>
<tr>
<td>43</td>
<td>Find the opposite of (-v).</td>
<td>2.1</td>
<td>(v)</td>
</tr>
<tr>
<td>44</td>
<td>Write the expression in words. (-5 + (-11))</td>
<td>2.1</td>
<td>Negative five plus negative eleven</td>
</tr>
<tr>
<td>45</td>
<td>Find the absolute value of (-16).</td>
<td>2.1</td>
<td>16</td>
</tr>
<tr>
<td>46</td>
<td>Evaluate (-</td>
<td>-27</td>
<td>)</td>
</tr>
<tr>
<td>47</td>
<td>Evaluate (-</td>
<td>y</td>
<td>), where (y = -5).</td>
</tr>
<tr>
<td>48</td>
<td>Place the correct symbol, (&lt;), (=), or (&gt;), between the numbers. (\dfrac{</td>
<td>-4</td>
<td>}{</td>
</tr>
<tr>
<td>49</td>
<td>Write the given numbers in order from smallest to largest. ((-4),</td>
<td>-5</td>
<td>,</td>
</tr>
<tr>
<td>Question</td>
<td>Description</td>
<td>Answer</td>
<td></td>
</tr>
<tr>
<td>----------</td>
<td>-------------</td>
<td>--------</td>
<td></td>
</tr>
<tr>
<td>50.</td>
<td>Which is the highest temperature, -8°C, -17°C, -29°C, or -6°C?</td>
<td>-6°C</td>
<td></td>
</tr>
<tr>
<td>51.</td>
<td>Add: -17 + (-4) + 13 + (-6)</td>
<td>-14</td>
<td></td>
</tr>
<tr>
<td>52.</td>
<td>Evaluate (-a + (-b)) when (a = -8) and (b = 3).</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>53.</td>
<td>Subtract: 5 – (-6) – (-1)</td>
<td>12</td>
<td></td>
</tr>
<tr>
<td>54.</td>
<td>Simplify: (-44 + 24 – (-18) – 3)</td>
<td>-5</td>
<td></td>
</tr>
<tr>
<td>55.</td>
<td>Evaluate (-x – (-y) – z) when (x = 9), (y = 1), and (z = -15).</td>
<td>7</td>
<td></td>
</tr>
<tr>
<td>56.</td>
<td>Use the formula (S = N – P), where (S) is a golfer’s score in a tournament, (N) is the number of strokes made by the golfer, and (P) is par, to find a golfer’s score when the golfer made 186 strokes and par is 201.</td>
<td>-15</td>
<td></td>
</tr>
<tr>
<td>57.</td>
<td>Multiply: (-5(7)(-4))</td>
<td>140</td>
<td></td>
</tr>
<tr>
<td>58.</td>
<td>What is the product of -40 and 60?</td>
<td>-2400</td>
<td></td>
</tr>
<tr>
<td>59.</td>
<td>Evaluate (x(-y)) when (x = -4) and (y = -9).</td>
<td>-36</td>
<td></td>
</tr>
<tr>
<td>60.</td>
<td>Divide: (-128/8)</td>
<td>-16</td>
<td></td>
</tr>
<tr>
<td>61.</td>
<td>What is -480 divided by -40?</td>
<td>12</td>
<td></td>
</tr>
<tr>
<td>62.</td>
<td>Evaluate (-m ÷ n) when (m = -28) and (n = -7).</td>
<td>-4</td>
<td></td>
</tr>
<tr>
<td>63.</td>
<td>The boiling point of radon is -62°C. The melting point of neon is four times the boiling point of radon. Find the melting point of neon?</td>
<td>-248°C</td>
<td></td>
</tr>
<tr>
<td>64.</td>
<td>Simplify: ((-3)^3 \cdot (3 – 7)^2 – (-8) ÷ 2)</td>
<td>-428</td>
<td></td>
</tr>
<tr>
<td>65.</td>
<td>Evaluate ((b – c)^2 – 2d) when (b = 4), (c = -1), and (d = -2).</td>
<td>29</td>
<td></td>
</tr>
<tr>
<td>66.</td>
<td>Find the LCM of 13, 27, and 39.</td>
<td>351</td>
<td></td>
</tr>
<tr>
<td>67.</td>
<td>Find the GCF of 27, 36, and 81.</td>
<td>9</td>
<td></td>
</tr>
<tr>
<td>68.</td>
<td>Express the shaded portion of the circles as an improper fraction and as a mixed number</td>
<td>(\frac{27}{8}; \frac{3}{8} )</td>
<td></td>
</tr>
<tr>
<td>69.</td>
<td>Write (\frac{25}{6}) as a mixed number or a whole number.</td>
<td>(4\frac{1}{6})</td>
<td></td>
</tr>
<tr>
<td>70.</td>
<td>Write (4\frac{2}{9}) as an improper fraction.</td>
<td>(\frac{38}{9})</td>
<td></td>
</tr>
<tr>
<td>71.</td>
<td>Write a fraction that is equivalent to (\frac{2}{7}) and has a denominator of 42.</td>
<td>(\frac{12}{42})</td>
<td></td>
</tr>
<tr>
<td>72.</td>
<td>Write (\frac{35}{49}) in simplest form.</td>
<td>(\frac{5}{7})</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Description</td>
<td></td>
<td></td>
</tr>
<tr>
<td>----</td>
<td>------------------------------------------------------------------------------</td>
<td>-----</td>
<td>-----</td>
</tr>
<tr>
<td>73</td>
<td>Place the correct symbol, $&lt;$, $=$, or $&gt;$, between the two numbers. $\frac{5}{6}$ $\frac{7}{9}$</td>
<td>$\frac{4.5}{4}$</td>
<td>$\frac{7}{4}$</td>
</tr>
<tr>
<td>74</td>
<td>In a history class, 3 students received an A, 4 students received a B, 6 students received a C, and 2 students received a D. What fraction of the students in the class received an A?</td>
<td>$\frac{4.1}{5}$</td>
<td>$\frac{1}{5}$</td>
</tr>
<tr>
<td>75</td>
<td>Add: $\frac{4}{5} + \frac{9}{10} + \frac{1}{2}$</td>
<td>$\frac{4.8}{5}$</td>
<td>$\frac{11}{5}$</td>
</tr>
<tr>
<td>76</td>
<td>Find the sum of $-\frac{7}{15}$ and $-\frac{11}{18}$.</td>
<td>$\frac{4.5}{5}$</td>
<td>$\frac{-7}{90}$</td>
</tr>
<tr>
<td>77</td>
<td>What is $\frac{5}{7}$ more than $\frac{5}{6}$?</td>
<td>$\frac{4.8}{5}$</td>
<td>$\frac{8}{15}$</td>
</tr>
<tr>
<td>78</td>
<td>Evaluate $x + y$ when $x = \frac{4}{21}$ and $y = -\frac{25}{28}$.</td>
<td>$\frac{4.5}{5}$</td>
<td>$\frac{-59}{84}$</td>
</tr>
<tr>
<td>79</td>
<td>Subtract: $-\frac{11}{20} - \frac{7}{30}$</td>
<td>$\frac{3.3}{5}$</td>
<td>$\frac{-47}{60}$</td>
</tr>
<tr>
<td>80</td>
<td>Subtract $\frac{5}{9} - \frac{3}{12}$.</td>
<td>$\frac{4.8}{5}$</td>
<td>$\frac{23}{36}$</td>
</tr>
<tr>
<td>81</td>
<td>What is $\frac{7}{10}$ less than $\frac{5}{8}$?</td>
<td>$\frac{4.5}{5}$</td>
<td>$\frac{37}{40}$</td>
</tr>
<tr>
<td>82</td>
<td>Evaluate $x - y$ when $x = \frac{4}{9}$ and $y = \frac{1}{15}$.</td>
<td>$\frac{4.8}{5}$</td>
<td>$\frac{43}{45}$</td>
</tr>
<tr>
<td>83</td>
<td>Two inlet pipes are being used to fill a tank. After one hour, the smaller pipe has filled $\frac{2}{7}$ of the tank and the larger pipe has filled $\frac{1}{3}$ of the tank. How much of the tank remains to be filled?</td>
<td>$\frac{4.5}{5}$</td>
<td>$\frac{8}{21}$</td>
</tr>
<tr>
<td>84</td>
<td>Multiply: $\frac{5}{6} \cdot \frac{18}{25} \cdot \frac{5}{9}$.</td>
<td>$\frac{4.3}{3}$</td>
<td>$\frac{1}{3}$</td>
</tr>
<tr>
<td>85</td>
<td>Multiply: $-21 \cdot \frac{3}{14}$.</td>
<td>$\frac{4.3}{3}$</td>
<td>$\frac{-41}{2}$</td>
</tr>
<tr>
<td>86</td>
<td>What is $3\frac{7}{12}$ multiplied by $3\frac{3}{7}$?</td>
<td>$\frac{4.8}{5}$</td>
<td>$\frac{122}{7}$</td>
</tr>
<tr>
<td>87</td>
<td>Divide: $0 \div \frac{3}{5}$.</td>
<td>$\frac{4.3}{5}$</td>
<td>$0$</td>
</tr>
<tr>
<td>88</td>
<td>Find $4\frac{6}{7}$ divided by $3\frac{1}{2}$.</td>
<td>$\frac{4.8}{5}$</td>
<td>$\frac{19}{49}$</td>
</tr>
<tr>
<td>89</td>
<td>Evaluate $x + y$ when $x = \frac{2}{3}$ and $y = \frac{8}{21}$.</td>
<td>$\frac{4.3}{4}$</td>
<td>$\frac{-13}{4}$</td>
</tr>
<tr>
<td>Question</td>
<td>Problem Statement</td>
<td>Solution</td>
<td></td>
</tr>
<tr>
<td>----------</td>
<td>-------------------</td>
<td>----------</td>
<td></td>
</tr>
<tr>
<td>90.</td>
<td>An 18-foot board is cut into pieces $\frac{1}{3}$ ft. long for use as bookshelves. What is the length of the remaining piece after as many shelves as possible are cut?</td>
<td>$1\frac{1}{3}$ ft.</td>
<td></td>
</tr>
<tr>
<td>91.</td>
<td>Evaluate $3 \left( \frac{4}{7} \right)^2 \cdot \left( \frac{1}{2} \right)^4$</td>
<td>$\frac{3}{49}$</td>
<td></td>
</tr>
<tr>
<td>92.</td>
<td>Evaluate $x^2y^4$ when $x = \frac{7}{9}$ and $y = \frac{1}{2}$.</td>
<td>16</td>
<td></td>
</tr>
<tr>
<td>93.</td>
<td>Simplify: $\frac{\frac{4}{2} + \frac{1}{3}}{\frac{1}{4} + \frac{2}{3}}$</td>
<td>$\frac{23}{35}$</td>
<td></td>
</tr>
<tr>
<td>94.</td>
<td>Evaluate $\frac{wx}{y+z}$ when $w = \frac{4}{5}$, $x = \frac{5}{6}$, $y = \frac{5}{8}$, and $z = \frac{2}{3}$.</td>
<td>$\frac{4}{9}$</td>
<td></td>
</tr>
<tr>
<td>95.</td>
<td>Simplify: $\left( \frac{3}{4} \right)^2 + \frac{9 - 7}{8 - 5} \cdot \frac{1}{3}$</td>
<td>$\frac{2}{9}$</td>
<td></td>
</tr>
<tr>
<td>96.</td>
<td>Evaluate $\frac{w-z^2}{xy}$ when $w = \frac{2}{3}$, $x = \frac{3}{8}$, $y = \frac{2}{5}$, and $z = \frac{1}{2}$.</td>
<td>$\frac{7}{9}$</td>
<td></td>
</tr>
<tr>
<td>97.</td>
<td>Name the place value of the digit 3 in 461.02378.</td>
<td>Thousandths</td>
<td></td>
</tr>
<tr>
<td>98.</td>
<td>Write $\frac{541}{1000}$ as a decimal.</td>
<td>0.541</td>
<td></td>
</tr>
<tr>
<td>99.</td>
<td>Write 0.83 as a fraction.</td>
<td>$\frac{83}{100}$</td>
<td></td>
</tr>
<tr>
<td>100.</td>
<td>Write 4.007 in words.</td>
<td>four and seven thousandths</td>
<td></td>
</tr>
<tr>
<td>101.</td>
<td>Write nineteen and seven thousand eight hundred thirteen hundred-thousandths in standard form.</td>
<td>19.07813</td>
<td></td>
</tr>
<tr>
<td>102.</td>
<td>Place the correct symbol, $&lt;$, $=$, or $&gt;$, between the two numbers. $3.2009$, $3.209$</td>
<td>$&lt;$</td>
<td></td>
</tr>
<tr>
<td>103.</td>
<td>Write the given numbers in order from smallest to largest. $1.528$, $1.258$, $1.852$, $1.582$</td>
<td>$1.258$, $1.528$, $1.582$, $1.852$</td>
<td></td>
</tr>
<tr>
<td>104.</td>
<td>Round 816.3904 to the nearest thousandth.</td>
<td>816.390</td>
<td></td>
</tr>
<tr>
<td>105.</td>
<td>Round 87.6037 to the nearest whole number.</td>
<td>88</td>
<td></td>
</tr>
<tr>
<td>106.</td>
<td>The specific gravity of zinc is 7.133. The specific gravity of potassium is 0.862. The specific gravity of indium is 7.31. The specific gravity of chromium is 7.18. Which has the highest specific gravity?</td>
<td>indium</td>
<td></td>
</tr>
<tr>
<td>Question</td>
<td>Expression</td>
<td>Solution</td>
<td></td>
</tr>
<tr>
<td>----------</td>
<td>------------</td>
<td>----------</td>
<td></td>
</tr>
<tr>
<td>108.</td>
<td>Subtract: $205.26 - (-62.043)$</td>
<td>267.303</td>
<td></td>
</tr>
<tr>
<td>109.</td>
<td>What is the sum of $0.94, 0.372, 0.028,$ and $0.627$?</td>
<td>1.967</td>
<td></td>
</tr>
<tr>
<td>110.</td>
<td>What is $5.042$ less than $12.36$?</td>
<td>7.318</td>
<td></td>
</tr>
<tr>
<td>111.</td>
<td>Evaluate $x + y + z$ when $x = 3.5765, y = 35,$ and $z = 11.08.$</td>
<td>49.6565</td>
<td></td>
</tr>
<tr>
<td>112.</td>
<td>Estimate the sum of $0.53, 0.467,$ and $0.95.$</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>113.</td>
<td>Estimate the difference between $96.75$ and $38.023.$</td>
<td>60</td>
<td></td>
</tr>
<tr>
<td>114.</td>
<td>You have a monthly budget of $720. This month you have already spent $25.68$ for the telephone bill, $52.94$ for food, $18.50$ for gasoline, $180$ for rent, and $83.76$ for a loan repayment. How much money do you have left in the budget for the remainder of the month?</td>
<td>$359.12</td>
<td></td>
</tr>
<tr>
<td>115.</td>
<td>Multiply: $-7.25(0.009)$</td>
<td>$-0.06525$</td>
<td></td>
</tr>
<tr>
<td>116.</td>
<td>Find the product of $3.66$ and $10^3.$</td>
<td>3660</td>
<td></td>
</tr>
<tr>
<td>117.</td>
<td>Evaluate $cd$ when $c = -2.426$ and $d = -8.2.$</td>
<td>19.8932</td>
<td></td>
</tr>
<tr>
<td>118.</td>
<td>Divide and round to the nearest thousandth: $(-0.5094) ÷ (-6.81)$</td>
<td>0.075</td>
<td></td>
</tr>
<tr>
<td>119.</td>
<td>What is $42.012$ divided by $10^2$?</td>
<td>0.42012</td>
<td></td>
</tr>
<tr>
<td>120.</td>
<td>Estimate the quotient of $246.024$ and $4.93.$</td>
<td>40</td>
<td></td>
</tr>
<tr>
<td>121.</td>
<td>Evaluate $\frac{x}{y}$ for $x = -23.1$ and $y = -6.6.$</td>
<td>3.5</td>
<td></td>
</tr>
<tr>
<td>122.</td>
<td>Convert $\frac{5}{6}$ to a decimal. Place a bar over the repeating digits of a repeating decimal.</td>
<td>$5.8\overline{3}$</td>
<td></td>
</tr>
<tr>
<td>123.</td>
<td>Convert $0.46$ to a fraction.</td>
<td>$\frac{23}{50}$</td>
<td></td>
</tr>
<tr>
<td>124.</td>
<td>Place the correct symbol, $&lt;, =, \text{ or } &gt;$, between the two numbers. $\frac{2}{7} \quad 0.28$</td>
<td>$&gt;$</td>
<td></td>
</tr>
<tr>
<td>125.</td>
<td>You earn an annual salary of $51,301.80. Find your monthly salary.</td>
<td>$4,275.15$</td>
<td></td>
</tr>
<tr>
<td>126.</td>
<td>Simplify $\sqrt{144}.$</td>
<td>12</td>
<td></td>
</tr>
<tr>
<td>127.</td>
<td>Simplify: $5\sqrt{36} - 2\sqrt{9}$</td>
<td>24</td>
<td></td>
</tr>
<tr>
<td>128.</td>
<td>Simplify: $\frac{16}{\sqrt{25}}$</td>
<td>$\frac{4}{5}$</td>
<td></td>
</tr>
<tr>
<td>129.</td>
<td>Evaluate $\sqrt{b^2 - 4ac}$ when $a = -2, b = 11,$ and $c = -5.$</td>
<td>9</td>
<td></td>
</tr>
<tr>
<td>130.</td>
<td>Between what two whole numbers is the value of $\sqrt{131}$?</td>
<td>11 and 12</td>
<td></td>
</tr>
<tr>
<td>Question</td>
<td>Description</td>
<td>Solution</td>
<td></td>
</tr>
<tr>
<td>----------</td>
<td>-------------</td>
<td>----------</td>
<td></td>
</tr>
<tr>
<td>131.</td>
<td>Graph $-3\frac{1}{2}$ on the number line.</td>
<td>-3.5</td>
<td></td>
</tr>
<tr>
<td>132.</td>
<td>Graph $-2.5$ on the number line.</td>
<td>-2.5</td>
<td></td>
</tr>
<tr>
<td>133.</td>
<td>Graph all real numbers less than 1.</td>
<td>-1</td>
<td></td>
</tr>
<tr>
<td>134.</td>
<td>Graph the real numbers between $-1$ and 2.</td>
<td>-1 to 2</td>
<td></td>
</tr>
<tr>
<td>135.</td>
<td>Which of the following numbers listed below make the inequality $x &lt; -2$ true?</td>
<td>$-3, -2.01$</td>
<td></td>
</tr>
<tr>
<td>136.</td>
<td>Graph $x \leq 1$ on the real number line.</td>
<td>$x \leq 1$</td>
<td></td>
</tr>
<tr>
<td>137.</td>
<td>A part-time student can take a maximum of 10 credit hours per semester. Write an inequality for the number of credit hours a part-time student can take.</td>
<td>$x \leq 10$</td>
<td></td>
</tr>
<tr>
<td>138.</td>
<td>Identify the Property of Real Numbers that justifies the statement. $7 + x = x + 7$</td>
<td>3.1 The Commutative Property of Addition</td>
<td></td>
</tr>
<tr>
<td>139.</td>
<td>Identify the Property of Real Numbers that justifies the statement. $(-3)(a) = (a)(-3)$</td>
<td>3.1 The Commutative Property of Multiplication</td>
<td></td>
</tr>
<tr>
<td>140.</td>
<td>Identify the Property of Real Numbers that justifies the statement. $(a + b) + c = a + (b + c)$</td>
<td>3.1 The Associative Property of Addition</td>
<td></td>
</tr>
<tr>
<td>141.</td>
<td>Identify the Property of Real Numbers that justifies the statement. $8 \cdot (5 \cdot d) = (8 \cdot 5) \cdot d$</td>
<td>3.1 The Associative Property of Multiplication</td>
<td></td>
</tr>
<tr>
<td>142.</td>
<td>Identify the Property of Real Numbers that justifies the statement. $c + 0 = c$</td>
<td>1.2 The Addition Property of Zero</td>
<td></td>
</tr>
<tr>
<td>143.</td>
<td>Identify the Property of Real Numbers that justifies the statement. $1 \cdot a = a$</td>
<td>1.5 The Multiplication Property of One</td>
<td></td>
</tr>
<tr>
<td>144.</td>
<td>Identify the Property of Real Numbers that justifies the statement. $\frac{3}{5} + \frac{3}{5} = 0$</td>
<td>1.3 The Inverse Property of Addition</td>
<td></td>
</tr>
<tr>
<td>145.</td>
<td>Identify the Property of Real Numbers that justifies the statement. $\frac{4}{7} \cdot \frac{7}{4} = 1$</td>
<td>4.3 The Inverse Property of Multiplication</td>
<td></td>
</tr>
<tr>
<td>146.</td>
<td>Simplify: $(4\cdot t) \cdot 8$</td>
<td>3.1 $-32t$</td>
<td></td>
</tr>
<tr>
<td>Question</td>
<td>Solution</td>
<td>Section</td>
<td></td>
</tr>
<tr>
<td>----------</td>
<td>----------</td>
<td>---------</td>
<td></td>
</tr>
<tr>
<td>147.</td>
<td>Simplify: $-\frac{2}{3}(12x)$</td>
<td>4.1 -8x</td>
<td></td>
</tr>
<tr>
<td>148.</td>
<td>Simplify: -3(2x - 5) by using the Distributive Property.</td>
<td>3.1 -6x + 15</td>
<td></td>
</tr>
<tr>
<td>149.</td>
<td>Simplify: -(2a + 5b + 1) by using the Distributive Property.</td>
<td>3.1 -2a - 5b - 1</td>
<td></td>
</tr>
<tr>
<td>150.</td>
<td>Simplify: $-2x^2 + 6x + 10x^2 - 8x - 1$</td>
<td>3.1 $8x^2 - 2x$</td>
<td></td>
</tr>
<tr>
<td>151.</td>
<td>Simplify: $7b - 2[3(4 - b) - 5(2b + 1)]$</td>
<td>3.1 $33b - 14$</td>
<td></td>
</tr>
<tr>
<td>152.</td>
<td>Which number (7, 4, 3, or 2) is a solution of $4y - 3 = 2(y - 4) + 9$?</td>
<td>3.1 2</td>
<td></td>
</tr>
<tr>
<td>153.</td>
<td>Solve: $a + 12 = -2$</td>
<td>3.2 -14</td>
<td></td>
</tr>
<tr>
<td>154.</td>
<td>Solve: $6 + a = 4$</td>
<td>3.2 -2</td>
<td></td>
</tr>
<tr>
<td>155.</td>
<td>Solve: $-8 = -7 + x$</td>
<td>3.2 -1</td>
<td></td>
</tr>
<tr>
<td>156.</td>
<td>Solve: $x - \frac{3}{4} = -\frac{5}{8}$</td>
<td>4.7 $\frac{1}{8}$</td>
<td></td>
</tr>
<tr>
<td>157.</td>
<td>Solve: $-2x = 14$</td>
<td>3.3 -7</td>
<td></td>
</tr>
<tr>
<td>158.</td>
<td>Solve: $-36 = 9y$</td>
<td>3.3 -4</td>
<td></td>
</tr>
<tr>
<td>159.</td>
<td>Solve: $-5x = -30$</td>
<td>3.3 6</td>
<td></td>
</tr>
<tr>
<td>160.</td>
<td>Solve: $\frac{3}{5}y = -9$</td>
<td>4.7 -15</td>
<td></td>
</tr>
<tr>
<td>161.</td>
<td>Solve: $\frac{n}{2} = 12$</td>
<td>3.3 24</td>
<td></td>
</tr>
<tr>
<td>162.</td>
<td>Solve: $-20 = -\frac{3}{4}x$</td>
<td>4.7 $\frac{80}{3}$</td>
<td></td>
</tr>
<tr>
<td>163.</td>
<td>Solve: $3y - 11 = -5$</td>
<td>3.4 2</td>
<td></td>
</tr>
<tr>
<td>164.</td>
<td>Solve: $5 = -8b + 13$</td>
<td>3.4 1</td>
<td></td>
</tr>
<tr>
<td>165.</td>
<td>Solve: $0 = 15 - 5b$</td>
<td>3.4 3</td>
<td></td>
</tr>
<tr>
<td>166.</td>
<td>Solve: $-2x + 3 = -5$</td>
<td>3.4 4</td>
<td></td>
</tr>
<tr>
<td>167.</td>
<td>Solve: $3y - \frac{3}{5} = \frac{12}{5}$</td>
<td>4.7 1</td>
<td></td>
</tr>
<tr>
<td>168.</td>
<td>Solve: $2n + \frac{1}{2} = -\frac{7}{4}$</td>
<td>4.7 $-\frac{9}{8}$</td>
<td></td>
</tr>
<tr>
<td>169.</td>
<td>Solve: $\frac{x}{7} - 2 = -1$</td>
<td>3.4 7</td>
<td></td>
</tr>
<tr>
<td>170.</td>
<td>Solve: $\frac{2}{3}x - 3 = 5$</td>
<td>4.7 12</td>
<td></td>
</tr>
<tr>
<td>171.</td>
<td>Find the Celsius temperature when the Fahrenheit temperature is -40°. Use the formula $F = \frac{9}{5}C + 32$, where $F$ is the Fahrenheit temperature and $C$ is the Celsius temperature.</td>
<td>4.7 -40°</td>
<td></td>
</tr>
<tr>
<td>172.</td>
<td>Solve: $3x - 5 = 5x + 7$</td>
<td>3.4 -6</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>---</td>
<td>---</td>
<td>---</td>
<td></td>
</tr>
<tr>
<td>173.</td>
<td>Solve: $11 - 3n = 2n + 9$</td>
<td>3.4</td>
<td>$\frac{2}{5}$</td>
</tr>
<tr>
<td>174.</td>
<td>Solve: $-3w - 4 = 5w - 20$</td>
<td>3.4</td>
<td>2</td>
</tr>
<tr>
<td>175.</td>
<td>Solve: $4 - 2(x - 3) = 5$</td>
<td>3.4</td>
<td>$\frac{5}{2}$</td>
</tr>
<tr>
<td>176.</td>
<td>Solve: $5 - 5x = 7x - 3(5x - 6)$</td>
<td>3.4</td>
<td>$\frac{13}{3}$</td>
</tr>
<tr>
<td>177.</td>
<td>Solve: $2(3 - 5a) + 6a = 3(a + 4)$</td>
<td>3.4</td>
<td>$-\frac{6}{7}$</td>
</tr>
<tr>
<td>178.</td>
<td>A force of 120 lb is applied at one end of a lever 18 ft long. A force of 80 lb is applied at the other end. Find the distance of the fulcrum from the 120-lb force when the system balances. Use the equation $F_1x = F_2(d - x)$, where $F_1$ and $F_2$ are the two forces, $x$ is the distance from $F_1$ to the fulcrum, and $d - x$ is the distance from $F_2$ to the fulcrum.</td>
<td>3.4</td>
<td>7.2 ft</td>
</tr>
<tr>
<td>179.</td>
<td>Write the comparison 12 lb to 9 lb as a ratio in simplest form using a fraction.</td>
<td>6.1</td>
<td>$\frac{4}{3}$</td>
</tr>
<tr>
<td>180.</td>
<td>Write “40 mi in 12 h” as a rate in simplest form.</td>
<td>6.2</td>
<td>$\frac{10mi}{3h}$</td>
</tr>
<tr>
<td>181.</td>
<td>Write “$33,000 earned in 12 months’” as a unit rate.</td>
<td>6.2</td>
<td>$2,750/month$</td>
</tr>
<tr>
<td>182.</td>
<td>A company’s cost to produce 100 calculators was $3,200. The company sold the calculators to the retail store for $4,500. What was the company’s profit on each calculator?</td>
<td>6.1</td>
<td>$13$</td>
</tr>
<tr>
<td>183.</td>
<td>Convert 108 in. to feet.</td>
<td>9.2</td>
<td>9 ft.</td>
</tr>
<tr>
<td>184.</td>
<td>Convert 80 km/h to meters per second. Round to the nearest tenth.</td>
<td>9.2</td>
<td>22.2 m/s</td>
</tr>
<tr>
<td>185.</td>
<td>Which proportion $\left(\frac{2}{3} = \frac{44}{66}, \frac{5}{9} = \frac{30}{45}, \frac{5}{8} = \frac{35}{64}, \text{or} \frac{1}{2} = \frac{30}{50}\right)$ is true?</td>
<td>6.3</td>
<td>$\frac{2}{3} = \frac{44}{66}$</td>
</tr>
<tr>
<td>186.</td>
<td>Solve: $\frac{7}{12} = \frac{n}{144}$</td>
<td>6.3</td>
<td>84</td>
</tr>
<tr>
<td>187.</td>
<td>Solve: $\frac{5}{y} = \frac{30}{82}$. Round to the nearest hundredth.</td>
<td>6.3</td>
<td>13.67</td>
</tr>
<tr>
<td>188.</td>
<td>Solve: $\frac{5}{2} = \frac{20}{n + 2}$</td>
<td>6.3</td>
<td>6</td>
</tr>
<tr>
<td>189.</td>
<td>A stock investment of 400 shares paid a dividend of $320. At this rate, how many additional shares are required to earn a dividend of $500?</td>
<td>6.4</td>
<td>225 additional shares</td>
</tr>
<tr>
<td></td>
<td>Question</td>
<td></td>
<td>Answer</td>
</tr>
<tr>
<td>---</td>
<td>--------------------------------------------------------------------------</td>
<td>---</td>
<td>---------</td>
</tr>
<tr>
<td>190.</td>
<td>Write 8% as a fraction.</td>
<td>7.1</td>
<td>$\frac{2}{25}$</td>
</tr>
<tr>
<td>191.</td>
<td>Write $\frac{3}{4}$% as a fraction.</td>
<td>7.1</td>
<td>$\frac{3}{400}$</td>
</tr>
<tr>
<td>192.</td>
<td>Write $\frac{3}{4}$% as a fraction.</td>
<td>7.1</td>
<td>$\frac{27}{400}$</td>
</tr>
<tr>
<td>193.</td>
<td>Write 7.3% as a decimal.</td>
<td>7.1</td>
<td>0.073</td>
</tr>
<tr>
<td>194.</td>
<td>Write 125% as a decimal.</td>
<td>7.1</td>
<td>1.25</td>
</tr>
<tr>
<td>195.</td>
<td>Write 37% as a decimal.</td>
<td>7.1</td>
<td>0.37</td>
</tr>
<tr>
<td>196.</td>
<td>Write 0.065 as a percent.</td>
<td>7.1</td>
<td>6.5%</td>
</tr>
<tr>
<td>197.</td>
<td>Write 1.6 as a percent.</td>
<td>7.1</td>
<td>160%</td>
</tr>
<tr>
<td>198.</td>
<td>Write 0.96 as a percent.</td>
<td>7.1</td>
<td>96%</td>
</tr>
<tr>
<td>199.</td>
<td>Write $\frac{7}{20}$ as a percent.</td>
<td>7.1</td>
<td>35%</td>
</tr>
<tr>
<td>200.</td>
<td>Write $1\frac{1}{5}$ as a percent.</td>
<td>7.1</td>
<td>120%</td>
</tr>
<tr>
<td>201.</td>
<td>Write $\frac{5}{12}$ as a percent. Round to the nearest tenth of a percent.</td>
<td>7.1</td>
<td>41.7%</td>
</tr>
<tr>
<td>202.</td>
<td>What percent of 75 is 50?</td>
<td>7.2</td>
<td>$66\frac{2}{3}$%</td>
</tr>
<tr>
<td>203.</td>
<td>What percent of 90 is 36?</td>
<td>7.2</td>
<td>40%</td>
</tr>
<tr>
<td>204.</td>
<td>32% of what is 19.2?</td>
<td>7.2</td>
<td>60</td>
</tr>
<tr>
<td>205.</td>
<td>Find $16\frac{2}{3}$% of 66.</td>
<td>7.2</td>
<td>11</td>
</tr>
<tr>
<td>206.</td>
<td>16 is what percent of 10?</td>
<td>7.4</td>
<td>160%</td>
</tr>
<tr>
<td>207.</td>
<td>Ten years ago, a painting was priced at $5,000. Today the painting has a value of $12,000. What percent of the price ten years ago is its value today?</td>
<td>7.4</td>
<td>240%</td>
</tr>
<tr>
<td>208.</td>
<td>A typist made errors on four words on a typing test. This was 2.5% of the total number of words typed. How many words were typed?</td>
<td>7.4</td>
<td>160 words</td>
</tr>
<tr>
<td>209.</td>
<td>The annual property tax for a house is 1.5% of the value of the house. What was the value of a house during a year in which the property taxes were $1,395?</td>
<td>7.4</td>
<td>$93,000</td>
</tr>
<tr>
<td>210.</td>
<td>Determine the complement of a 75° angle.</td>
<td>9.1</td>
<td>15°</td>
</tr>
<tr>
<td>211.</td>
<td>Determine the supplement of a 127° angle.</td>
<td>9.1</td>
<td>53°</td>
</tr>
<tr>
<td>212.</td>
<td>Given $BC = 18$ mm and $AB$ is two-thirds the length of $BC$, find the length of $AC$.</td>
<td>9.1</td>
<td>30 mm</td>
</tr>
<tr>
<td>Question</td>
<td>Description</td>
<td>Angle Measure</td>
<td></td>
</tr>
<tr>
<td>----------</td>
<td>-------------</td>
<td>---------------</td>
<td></td>
</tr>
<tr>
<td>213.</td>
<td>Given that $\angle ABC$ is a right angle, determine the measure of $\angle x$.</td>
<td>25°</td>
<td></td>
</tr>
<tr>
<td>214.</td>
<td>Find $x$.</td>
<td>43°</td>
<td></td>
</tr>
<tr>
<td>215.</td>
<td>Find the measure of angle $a$.</td>
<td>25°</td>
<td></td>
</tr>
<tr>
<td>216.</td>
<td>Find the measure of angle $b$.</td>
<td>155°</td>
<td></td>
</tr>
<tr>
<td>217.</td>
<td>Find $x$.</td>
<td>68°</td>
<td></td>
</tr>
<tr>
<td>218.</td>
<td>Find $x$.</td>
<td>70°</td>
<td></td>
</tr>
<tr>
<td>219.</td>
<td>$L_1 \parallel L_2$. Find the measure of angles $a$, $b$, $c$ and $d$.</td>
<td>angle $a = 27^\circ$, angle $b = 153^\circ$, angle $c = 27^\circ$, angle $d = 153^\circ$</td>
<td></td>
</tr>
</tbody>
</table>
220. $L_1 \parallel L_2$. Find $x$.  

\[ \begin{array}{c}
100^\circ \\
4x - 4^\circ \\
\end{array} \]

9.1 $21^\circ$

221. $L_1 \parallel L_2$. Find $x$.  

\[ \begin{array}{c}
100^\circ \\
3x - 2^\circ \\
\end{array} \]

9.1 $34^\circ$

222. A triangle has a $21^\circ$ angle and a $64^\circ$ angle. Find the measure of the other angle.

9.1 $95^\circ$

223. A right triangle has a $71^\circ$ angle. Find the measure of the other two angles.

9.1 $90^\circ, 19^\circ$

224. Given that $\angle a = 45^\circ$ and $\angle b = 60^\circ$, find the measure of angle $x$.

9.1 $165^\circ$

225. Given that $\overline{AO} \perp \overline{OB}$, express in terms of $x$ the number of degrees in $\angle AOC$.

9.1 $90 - 2x$

226. Name the polygon that has seven sides.

9.1 Heptagon
<p>| | | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>227.</strong></td>
<td>Name the triangle that has three equal sides.</td>
<td>9.1</td>
<td>Equilateral</td>
<td></td>
</tr>
<tr>
<td><strong>228.</strong></td>
<td>Find the perimeter of a triangle with sides 21.3 cm, 17.4 cm, and 14.8 cm.</td>
<td>9.3</td>
<td>53.5 cm</td>
<td></td>
</tr>
<tr>
<td><strong>229.</strong></td>
<td>Find the circumference of a circle with a radius of 6 cm. Use $\pi \approx 3.14$.</td>
<td>5.3</td>
<td>37.68 cm</td>
<td></td>
</tr>
<tr>
<td><strong>230.</strong></td>
<td>Find the exact circumference of a circle with a diameter of 35 ft.</td>
<td>5.3</td>
<td>$35 \pi$</td>
<td></td>
</tr>
<tr>
<td><strong>231.</strong></td>
<td>Find the perimeter of a rectangle with a length of 3 m and a width of 0.75 m.</td>
<td>9.3</td>
<td>7.5 m</td>
<td></td>
</tr>
<tr>
<td><strong>232.</strong></td>
<td>Find the area of a right triangle with base 5 cm and a height of 2.6 cm.</td>
<td>9.4</td>
<td>6.5 cm$^2$</td>
<td></td>
</tr>
<tr>
<td><strong>233.</strong></td>
<td>Find the area of a square with a side of 7 ft.</td>
<td>9.4</td>
<td>49 ft$^2$</td>
<td></td>
</tr>
<tr>
<td><strong>234.</strong></td>
<td>Find the area of a rectangle with length of 25 in. and a width of 13 in.</td>
<td>9.4</td>
<td>325 in$^2$</td>
<td></td>
</tr>
<tr>
<td><strong>235.</strong></td>
<td>Find the exact area of a circle with a diameter of 26 cm.</td>
<td>9.4</td>
<td>$169 \pi$ cm$^2$</td>
<td></td>
</tr>
<tr>
<td><strong>236.</strong></td>
<td>Find the area of a trapezoid shown in the figure.</td>
<td>9.4</td>
<td>33 m$^2$</td>
<td></td>
</tr>
<tr>
<td></td>
<td><img src="image" alt="Trapezoid Diagram" /></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>237.</strong></td>
<td>A room 11 ft by 15 ft is to be carpeted. Find the number of square yards of carpet needed. Round to the nearest tenth.</td>
<td>9.4</td>
<td>18.3 yd$^2$</td>
<td></td>
</tr>
<tr>
<td><strong>238.</strong></td>
<td>Find the area of the parallelogram shown in the figure.</td>
<td>9.4</td>
<td>102 m$^2$</td>
<td></td>
</tr>
<tr>
<td></td>
<td><img src="image" alt="Parallelogram Diagram" /></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>239.</strong></td>
<td>Find the unknown side of the triangle. Round to the nearest hundredth.</td>
<td>6.5</td>
<td>8.25 in.</td>
<td></td>
</tr>
<tr>
<td></td>
<td><img src="image" alt="Triangle Diagram" /></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
240. A ladder 10 m long is leaning against a building. How high on the building will the ladder be when the bottom of the ladder is 4 m from the building? Round to the nearest thousandth.

<table>
<thead>
<tr>
<th>Calculation</th>
<th>Answer</th>
</tr>
</thead>
<tbody>
<tr>
<td>$h = \sqrt{10^2 - 4^2}$</td>
<td>$h = 9.165$ m</td>
</tr>
</tbody>
</table>

241. Find the ratio of the corresponding sides for the similar triangles.

<table>
<thead>
<tr>
<th>Side Ratio</th>
<th>Calculation</th>
</tr>
</thead>
<tbody>
<tr>
<td>$\frac{8}{6} = \frac{24}{18}$</td>
<td>$\frac{1}{3}$</td>
</tr>
</tbody>
</table>

242. Triangles $ABC$ and $DEF$ are similar. Find side $AC$.

<table>
<thead>
<tr>
<th>Side Length</th>
<th>Calculation</th>
</tr>
</thead>
<tbody>
<tr>
<td>$AC$</td>
<td>$\frac{5}{25} = \frac{4}{20}$</td>
</tr>
</tbody>
</table>

243. Triangles $ABC$ and $DEF$ are similar. Find the perimeter of triangle $ABC$.

<table>
<thead>
<tr>
<th>Perimeter</th>
<th>Calculation</th>
</tr>
</thead>
<tbody>
<tr>
<td>$15$ cm</td>
<td>$5 + 25 + \sqrt{5^2 + 25^2}$</td>
</tr>
</tbody>
</table>

244. Find the perimeter. Use $\pi \approx 3.14$.

<table>
<thead>
<tr>
<th>Perimeter</th>
<th>Calculation</th>
</tr>
</thead>
<tbody>
<tr>
<td>$95.98$ m</td>
<td>$14 + 30 + \pi \cdot 14 + \pi \cdot 30$</td>
</tr>
</tbody>
</table>
245. Find the area. Use $\pi \approx 3.14$.  

\[
\begin{align*}
\text{Area} &= \frac{1}{2} \times \text{base} \times \text{height} + \pi \times \text{radius}^2 \\
&= \frac{1}{2} \times 26 \text{ cm} \times 24 \text{ cm} + \pi \times (14 \text{ cm})^2 \\
&= 312 \text{ cm}^2 + 196 \text{ cm}^2 \\
&= 508 \text{ cm}^2 \\
&\approx 706.08 \text{ cm}^2
\end{align*}
\]

246. Find the area of the concrete driveway with measurements shown.  

\[
\begin{align*}
\text{Area} &= \text{rectangle} + \text{triangle} \\
&= 24 \text{ ft} \times 58 \text{ ft} + \frac{1}{2} \times 28 \text{ ft} \times 15 \text{ ft} \\
&= 1392 \text{ ft}^2 + 210 \text{ ft}^2 \\
&= 1602 \text{ ft}^2
\end{align*}
\]

\[
\begin{align*}
\text{Area} &= 1602 \text{ ft}^2 \\
&\approx 1140 \text{ ft}^2
\end{align*}
\]