

Grade 7 Curriculum Overview

Number Sense

- Add, subtract, multiply and divide whole numbers, mixed numbers, fractions and decimals.
- Find equivalent values for fractions, percents and decimals (e.g., $\frac{1}{4} = .25 = 25\%$).
- Compare using math verbs.
- Add with more than two fractions.
- Change improper fractions to mixed numbers.
- Write numbers in expanded notation. (e.g., $1,111 = 1,000 \times 1 + 100 \times 1 + 10 \times 1 + 1$).
- Estimate answers using all four functions.
- Order numbers, fractions, percents and decimals from least to greatest.
- Determine place value from ten-thousandths to billions.
- Round numbers to the nearest million, hundred thousand, ten thousand, tenth, hundredth,
- Determine the greatest common divisor.
- Add and subtract with negative numbers.
- Determine prime numbers.
- Transcribe numerals into words.
- Rearrange a given set of numerals to find the largest and the smallest numbers possible.

Measurement

- Convert within a system of measurement (86 ounces = 5 pounds 6 ounces).
- Determine the appropriate unit of measurement to use (e.g., centimeters, meters or kilometers to measure the length of a knife).
- Add, subtract, multiply and divide with money.
- Determine percent of a coin given other coins (e.g., what percent of a dime is a nickel?).
- Continue time sequence patterns (e.g., 1:46, 1:57...).
- Figure simple interest.
- Determine profit given a set of data.
- Determine hours as a fraction of a day (e.g., what fraction of a day is 8 hours).
- Determine seconds as a percent of a minute (e.g., what percent of one minute is 10 seconds).
- Add hours and minutes to a given time.
- Determine time using more than one time zone.

Geometry

- Identify the radius, diameter and center of a circle.
- Find the area and perimeter of a triangle and quadrilateral.
- Determine the area of a square given the length of one side.
- Determine the third angle of a triangle given the other two.
- Identify right, obtuse and acute angles.

Data Analysis, Statistics and Probability

- Interpret information from a graph.
- Interpret information from a Venn diagram.
- Determine what information is missing in order to solve a word problem.
- Demonstrate an understanding of simple probability.

Optional Prealgebra Lessons

- Recognize and use the math verbs correctly in a math sentence (greater than, greater than or equal to, less than, less than or equal to, equals).
- Explore the powers of 10, both positive and negative, by moving the decimal place accordingly.
- Evaluate expressions using the rules for the order of operations.
- Describe rate as a fraction of two numbers with different units.
- Describe ratio as a fraction of two numbers with the same units.
- Solve problems using the distributive, commutative and associative properties.
- Use scientific notation to represent large and small numbers.
- Describe a pattern using variables.
- Name and draw points on the xy-coordinates.
- Graph the solution to an equation on the xy-coordinates.
- Demonstrate an understanding of slope as rate of change.
- Calculate the slope given two points on a line or the equation for a line.
- Graph linear functions.
- Draw the image of a polygon under a translation or a reflection.
- Solve problems involving supplementary and complementary angles.
- Identify the legs and the hypotenuse of a right triangle.
- Translate words to algebraic expressions or equations.
- Create and apply an algebraic equation to solve a real life situation.
- Justify responses to problems.
- Find the next term, the constant difference and a rule for an arithmetic sequence.
- Generalize a solution to solve a new problem.
- Demonstrate an understanding of size change and its effect on the perimeter and area of a geometric figure.
- Make conclusions from a stem-and-leaf plot.
- Identify the range, mean, median and mode of a data set.
- Create a box-and-whisker plot from a data set.
- Demonstrate an understanding of “or” and “and” in a probability problem.
- Use the circumference and area formulas to solve problems involving circles.
- Solve algebraic equations.
- Find the third side of a right triangle using the Pythagorean Theorem.
- Demonstrate an understanding of absolute value.
- Identify the leading coefficient, degree, number of terms and constant of a polynomial.
- Determine whether or not a sample group is biased.

Instructions for Parents

- To use Summer Math Skills Sharpener, simply tear off a page and have your child complete it. The book is designed to be used 3 days per week for 10 weeks.
- Supplemental lessons have been included to address changing state and National Standards. These lessons are **OPTIONAL**.
- **ALLOW YOUR CHILD TO SKIP CONCEPTS NOT YET LEARNED.**
- Check answers immediately for optimal feedback. An answer sheet and solution pages are provided at the back of the book. (Solution pages represent only **ONE** method of solving each problem.)
- “Help Pages” have been added at the front of the book to clarify certain concepts.
- Allow your child to use a calculator only for those problems marked “Calculator Skill.”
- When solving division problems with remainders, students should use fractions or decimals rounded off to the nearest hundredth.
- When solving fraction problems, students should reduce answers to the lowest possible terms.
- Pages entitled “Brain Aerobics” are located at the back of the book. Have your child complete one page per week for extra practice. The answers to these questions are on the back of each page.
- A “Glossary of Terms” and a “Table of Measurements” are at the back of the book.
- Adjust the program to vacations, etc. Presentation of mixed concepts on every page ensures that all skills are reinforced; therefore, pages may be completed in any order.
- If your child experiences difficulty with concepts that have already been taught, address the problem with his or her teacher in the fall; more consistent problems indicate that a tutor may be needed.

We appreciate your comments. Please send in the enclosed evaluation page before November 1st, after your child has returned to school in the fall and you are able to determine the success of the Summer Math Skills Sharpener.

Dividing a Whole Number by a Fraction

Example: $2 \div \frac{1}{3}$

1st Step $2 = \frac{2}{1}$ Put the *whole number* in fraction form.

2nd Step $\frac{2}{1} \div \frac{1}{3}$ ← divisor Locate the divisor and invert.

$\frac{1}{3}$ becomes $\frac{3}{1}$

3rd Step $\frac{2}{1} \times \frac{3}{1} = \frac{6}{1}$ Invert the divisor and multiply.

4th Step $\frac{6}{1} = 6$

Dividing a Fraction by a Whole Number

Example: $\frac{1}{3} \div 2$

1st Step $2 = \frac{2}{1}$ Put the whole number in fraction form.

2nd Step $\frac{1}{3} \div \frac{2}{1}$ ← divisor Locate the divisor and invert.

$\frac{2}{1}$ becomes $\frac{1}{2}$

3rd Step $\frac{1}{3} \times \frac{1}{2} = \frac{1}{6}$ Multiply the numerators and denominators.

4th Step $\frac{1}{6}$ is in lowest terms Simplify (reduce) if necessary.

1. What fraction of the day would you spend in bed if you slept:
- a. 8 hours _____ b. 9 hours _____
- c. 10 hours _____
2. a. $\frac{1}{9} \times \frac{3}{10} =$ _____ b. $\frac{1}{9} \div \frac{1}{3} =$ _____
3. What time would it be 5 hours and 50 minutes after 3:45 a.m.? _____
4. If $72 \div x = y$, then which is true?
- a. $xy = 72$ b. $x \div y = 72$ c. $x - y = 72$ _____
5.
$$\begin{array}{r} 8\frac{7}{15} \\ + 4\frac{4}{5} \\ \hline \end{array}$$
6. Write two fractions that are equivalent to $\frac{1}{5}$.
Their denominators have to be between 42 and 52.

7.
$$\begin{array}{r} 18 \\ - 8\frac{3}{4} \\ \hline \end{array}$$

8. Find the value of n. $67 = n - 9$ $n =$ _____

9. Put in order from least to greatest.

$$\frac{93}{100}$$

$$\frac{9}{10}$$

.899

91%

$$\frac{901}{1,000}$$

10. Mental math: $50 \times 50 =$ _____

11. One arena sold 10,000 tickets in the month of April. This was 20% more than sold in March. In May, the arena sold only $\frac{1}{2}$ of what they sold in April. How many total tickets did the arena sell in April and May?

12. Hands on: Francesca has quarters and dimes that equal \$1.15. She has 1 more dime than quarters. How many quarters and dimes does she have? Use some coins to help you.

1. Place these signs (+ -) between the numerals to make the number equation correct:

$$5 \quad 0 \quad 7 \quad 2 \quad 0 \quad 7 \quad 4 \quad = \quad 304$$

2. $.82 \overline{)6724}$

3. Write this number in standard form: eight hundred twenty-one million

4. $\frac{1}{2} \div \frac{4}{5} =$ _____

5. Solve for n: $88 = n - 88$ $n =$ _____

6. Cheryl, Carolyn, Linda and Kathy were in line for concert tickets. Cheryl was between Carolyn and Linda. Kathy was not first in line. Carolyn was between Kathy and Cheryl. Put them in the correct order from first to last.

7. $\frac{5}{8} \times \frac{1}{3} =$ _____

8. Mental math:

a. $323 \times 100 =$ _____ b. $63,600 \div 100 =$ _____

9. Two angles of a triangle are 33° and 42° . What is the third angle? _____

10. Arrange these decimals in order from least to greatest:

.041

.014

.004

.001

11. Willie spent \$10 on Monday. On Tuesday he spent $\frac{1}{2}$ of what he spent on Monday. On Wednesday he spent $\frac{1}{5}$ of what he spent on Monday. How much did he spend altogether in the 3 days?

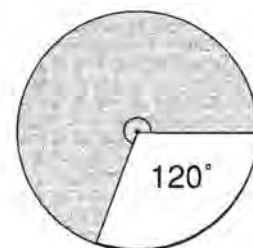
12. Calculator skill: Find the value of this number using a calculator: $2,731^2$

$$\begin{array}{r}
 1. \quad \frac{9}{30} \\
 \quad \frac{11}{30} \\
 + \quad \frac{19}{30} \\
 \hline
 \end{array}$$

2. a. What is the angle of the shaded area in degrees?

- b. What percent of the circle is the shaded area? _____

- c. What fraction of the circle is the shaded area? _____



3.
$$\begin{array}{r}
 4 \text{ feet } 4 \text{ inches} \\
 - 3 \text{ feet } 9 \text{ inches} \\
 \hline
 \end{array}$$

4.
$$\begin{array}{l}
 x = 50 \\
 y = 25 \\
 z = 2
 \end{array}
 \quad \frac{x + yz}{10} = \underline{\hspace{2cm}}$$

5. a. $8 - 2\frac{3}{10} = \underline{\hspace{2cm}}$ b. $2\frac{3}{4} + 1\frac{1}{2} = \underline{\hspace{2cm}}$

6. $30 \overline{)68.4}$

7. What is the greatest common factor for these numbers? 63, 54, 81

8. Mental math:

a. $28,050 + 3,050 =$ _____

b. $5,420 - 4,421 =$ _____

9. a. $3\frac{1}{6} \times 1\frac{1}{10} =$ _____

b. $\frac{1}{2} \div 1\frac{1}{4} =$ _____

10. Find the value of n: $180 \div n = 6$ $n =$ _____

11. The first week of school Kim studied 11 hours and 25 minutes. The second week he studied 9 hours and 45 minutes and the third week 10 hours and 58 minutes. How much time did he study for these 3 weeks?

12. Probability: A die with 6 faces is tossed. If the faces are numbered from 1-6, what is the probability that the die will land on a number:

a. higher than 5? _____

b. lower than 3? _____

1. For problems, a – c, simplify. (Recall that the order of operations is: parentheses, powers, multiplication and division from left to right; addition and subtraction from left to right.)

a. $(2 - 4)^2 / 1 + 1$ b. $8 - 8 / 2 \times 2$ c. $\frac{7 - 1^2}{4 - 2}$

2. A *variable* is a symbol that can be replaced by a number.

Let $a = -2$ $b = -\frac{1}{2}$ $c = \frac{1}{2}$ $d = 2$ Find the following:

a. ab b. a^2 c. b^2
 d. $\frac{b}{d}$ e. $-a + d$ f. $abcd$

3. *Expressions* occur when numbers and variables are joined using arithmetic operations. Translate the following into algebraic expressions. Let n = number.

- a. Five more than twice a number _____
 b. Six less than half of a number _____
 c. A number squared plus two _____
 d. The opposite of a number _____

4. A *polynomial* is an expression written as the sum or difference of terms. To simplify a polynomial, combine like terms. Simplify the following:

a. $2a + 3b - 6a + b$ b. $4x^2 - x - 3x^2 + x$

5. The mean, median, and mode are measures of *central tendency*. Find the mean, median, and mode for the given number set.

2 2 3 0 2 9 8 8 4 2 3 25 80

a. mean _____ b. median _____ c. mode _____

- d. Which is the best representation of middle or central tendency? Justify.

6. A *ratio* is the quotient of two quantities in the same unit.

The ski club has 12 girls and 7 boys.

a. Find the ratio of girls to boys.

b. Find the ratio of girls to the club membership.

7. For problems a – c, solve for x .

a. $3x + 5 = -4$ b. $\frac{2}{3}x = 6$ c. $-x + 8 = -4$

8. Use the *distributive* property to find the missing number or variable.

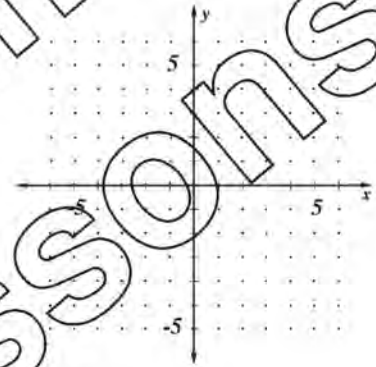
a. $4(x - y) = 4(\quad) + 4(\quad)$ b. $8a - 16b = (\quad)(a - 2b)$

9. a. Find three pairs of points that satisfy the equation $x + y = 3$.

b. Plot the points on the graph at the right and draw a line through them.

c. The slope or constant rate of change of a linear equation is the ratio of the rise/run. Pick a point on the line and then, reading the graph from left to right, find the rise and run to get to another point on the graph.

d. Substitute your point into the equation to verify that it is on the line.



10. Write each number using scientific notation.

a. 43200 _____

b. 1,000,000 _____

c. .00502 _____

d. 5 _____

BRAIN AEROBICS - WEEK 1

1. What is the sum of all the prime numbers between 10 and 20?

2. Judith is 5 years younger than Trina and 5 years older than Gretchen. The average of their ages is 23. How old is each woman?

3. Pamela can swim under water for 51 seconds without a breath. Lucy can swim $\frac{3}{5}$ minute and Kady .8 minute. Who can stay underwater the longest?

4. Mr. Jackson spends \$500 per month for rent. His new apartment will cost him 10% more than he is paying now. How much is the rent for his new apartment?

5. Find the set of counting numbers which would make this equation true.
 $20 - x > 14$

The Metric Units

Temperature - Celsius

0°C: the freezing point of water
37°C: the normal body temperature
100°C: the boiling point of water

Mass

1000 milligrams (mg) = 1 gram
1000 grams = 1 kilogram (kg)
1000 kilograms = 1 metric ton (t)

Capacity

1000 milliliters (mL) = 1 liter (L)
1000 liters = 1 kiloliter (kL)

Length

10 millimeters (mm) = 1 centimeter
10 centimeters (cm) = 1 decimeter
1000 millimeters (mm) = 1 meter (m)
100 centimeters = 1 meter (m)
10 decimeters (dm) = 1 meter
1000 meters (m) = 1 kilometer (km)

The Customary Units

Temperature - Fahrenheit

32°F: the freezing point of water
98.6°F: the normal body temperature
212°F: the boiling point of water

Weight

1 pound (lb) = 16 ounces (oz)
1 ton = 2,000 pounds

Time

1 minute (min) = 60 seconds (s)
1 hour = 60 minutes
1 day = 24 hours
1 week = 7 days
1 month (mo) = approx. 4 weeks
1 year (yr) = 365 days
52 weeks
12 months
1 decade = 10 years
1 century = 100 years

Capacity

1 cup (c) = 8 fluid ounces (fl oz)
1 pint (pt) = 16 fluid ounces
2 cups
1 quart (qt) = 32 fluid ounces
4 cups
2 pints
1 gallon (gal) = 128 fluid ounces
16 cups
8 pints
4 quarts

Length

1 foot (ft) = 12 inches (in)
1 yard (yd) = 36 inches
3 feet
1 mile (mi) = 5,280 feet
1,760 yards

GLOSSARY OF TERMS AND FORMULAS

a.m.: a way of expressing time between 12:00 midnight and 12:00 noon.

acute angle: an angle measuring less than 90 degrees.

addends: numbers to be added together in an addition problem.

algebraic expression: an expression that uses at least one letter to represent a number.

angle: the measured space between two lines that meet at one point.

area: the measure of a region in square units.

Formulas:

Quadrilateral: $A = \text{length} \times \text{width}$

Triangle: $A = \frac{1}{2} \times \text{base} \times \text{height}$

Circle: $A = \pi r^2$

$\pi \approx 3.14$

$r = \text{radius}$

average: a number obtained by adding a group of numbers together and dividing by the number of addends.

center: the point from which all points on a circle are equally distant.

circle: a closed, curved line. Each point on the circle is the same distance from the center of the circle.

circumference: the distance around a circle.

Formula: $c = 2 \pi r$ $r = \text{radius}$ $\pi \approx 3.14$

common denominator: a multiple of all denominators in a problem.

common factor: a number that is a factor of two other numbers is a **common** factor.

Example: 3 is a common factor of 9 and 12.

common multiple: a number that is a multiple of two other numbers.

Example: 24 is a common multiple of 6 and 4.

complementary angle: the number in degrees given to an angle that when added to another angle will give 90 degrees.

congruent: being the same.

coordinates: number pairs used in graphing. The horizontal axis is listed first and the vertical axis is listed second.

Example: 8, 10

customary measurement: units of measurement used in the United States.

Example: feet, pounds, miles, etc.

decade: a period of 10 years.

decimal point: a period put just before the decimal fraction such as the periods in .625 and .08

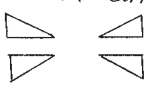
degree: a unit used to measure an angle or temperature.

- 1.) a. center
b. radius
c. diameter
- 2.) $\frac{5}{16} \times \frac{10}{1} = 50$ minutes
 $\frac{5}{6}$ hr. < 52 minutes
- 3.) $\frac{1}{15} \times \frac{15}{2} = \frac{1}{2}$
- 4.) $\frac{1}{6} = .16\bar{6}$
 $\frac{1}{10} = .10$
 $\frac{1}{8} = .125$
- 5.) $\frac{36 \text{ concepts}}{\text{minute}} \cdot \frac{15 \text{ minutes}}{1} = 540 \text{ concepts}$
- 6.) $1 = 100\%$
 $\frac{3}{10} = 30\%$
 $100\% + 30\% = 130\%$
- 7.)
$$\begin{array}{r} 932 \\ 09 \overline{) 8388} \\ \underline{-81} \\ 28 \\ \underline{-27} \\ 18 \\ \underline{-18} \\ 0 \end{array}$$
- 8.) Use cross multiplication to solve.
 $\frac{2}{n} = \frac{1}{3}$ $1 \cdot n = 2 \cdot 3$
 $n = 6$
- 9.) a. 15 is the middle number
b. $5 + 10 + 15 + 20 + 25 = 75$
 $75 \div 5 = 15$
- 10.) a. C
A = 3 times
B = 2 times
C = 4 times
D = 3 times
- 11.) .001 When dividing by 100 move decimal 2 places to the left. 00,1 .001
- 12.) Calculator skill: pounds \times 16oz. \times \$280.00

- 1.) 3 quarters = \$.75
3 dimes = \$.30
4 nickels = \$.20
\$1.25
 $\times 7\% \text{ of } \$5.00 = \1.25
 $\$1.25 \div \$5.00 = .25 = 25\%$
- 2.) $(3 \cdot 3) + 7$
 $9 + 7 = 16$
- 3.) $A = \frac{1}{2}bh$
 $A = \frac{1}{2}(8.3 \times 6.4)$
 $A = \frac{1}{2}(53.12)$
 $A = 26.56 \text{ sq. m.}$
- 4.) $\frac{5}{6} = \frac{5}{6}$
 $+\frac{1}{3} = \frac{2}{6}$
 $\frac{7}{6} = 1\frac{1}{6}$
- 5.) 4 quarts = 1 gallon
2 pints = 1 quart
2 $\frac{1}{2}$ gallons = 1 gallon = 10 qts
10 qts \cdot $\frac{2 \text{ pints}}{1 \text{ qt}} = 20 \text{ pints}$
- 6.) $75 - 17 = 58$
- 7.) $400 \times 100 = 40,000$
- 8.) $3^2 = 3 \times 3 = 9$ $100 \div 10 = 10$
 $8\% \text{ of } 100 = 8$ $\frac{79}{11} = 7$
correct: $\frac{79}{11}$, 8% of 100, 3^2 , $100 \div 10$
- 9.) Cross multiply:
 $\frac{10}{n} = \frac{4}{4}$ $1 \cdot n = 10 \cdot 4$
 $n = 40$
- 10.) a. $4 \times 4 = 16$ square units
 $1 \times 7 = 7$ square units
NO
b. $4 + 4 + 4 + 4 = 16$ units
 $7 + 1 + 7 + 1 = 16$ units
YES
- 11.) $5 \frac{1}{4} \div 1 \frac{1}{3} = \frac{21}{4} \times \frac{3}{4} = \frac{63}{16} = 3 \frac{15}{16}$
- 12.) Calculator skill:
 $1.06 \times 2,864 =$
\$3,035.84



- 1.) $1 + 2 + 3 + 4 + \dots + 31 = 496.00$
- 2.) $\frac{5}{2} \times \frac{3}{7} = \frac{5}{2} = 2\frac{1}{2}$
- 3.) ten thousandths
- 4.) $75 \times 10,000 = 750,000$
Move the decimal point 4 places to the right when multiplying by 10,000.
- 5.) $1\frac{1}{2} = 1\frac{1}{2}$
 $+\frac{1}{3} = \frac{4}{6}$
 $1\frac{2}{3} = 1\frac{4}{6}$
- 6.) $10^8 = 100,000,000$
 $3 \times 100,000,000 = 300,000,000$
300 millions
- 7.) $12.6 + -n = 5.4$
 -12.6
 $-n = -7.2$
 $n = 7.2$
- 8.) a. $\frac{5}{100} = 5\%$
b. $\frac{5}{25} = \frac{20}{100} = 20\%$
c. $\frac{5}{10} = \frac{50}{100} = 50\%$
d. $\frac{5}{50} = \frac{10}{100} = 10\%$
- 9.)
$$\begin{array}{r} 141 \\ 37 \overline{) 5217} \\ \underline{-37} \\ 151 \\ \underline{-111} \\ 407 \\ \underline{-37} \\ 37 \\ \underline{-37} \\ 0 \end{array}$$
- 10.) C
- 11.) $\frac{1}{2}(32) = 16 = \text{cat}$
 $\frac{1}{4}(16) = 4 = \text{parrot}$ 4 lbs.
- 12.) $6\frac{1}{2} \div 2\frac{2}{3} = \frac{13}{2} \div \frac{13}{5} = \frac{13}{2} \times \frac{5}{13} = \frac{5}{2} = 2\frac{1}{2}$

- 1.) a. $7\frac{1}{6} = 7\frac{1}{6} = 6\frac{7}{6}$
 $-3\frac{1}{2} = 3\frac{3}{6} = 3\frac{3}{6}$
 $3\frac{4}{6} = 3\frac{2}{3}$
- b. $5\frac{1}{4} \div 3\frac{1}{2} = \frac{21}{4} \div \frac{7}{2} = \frac{21}{4} \times \frac{2}{7} = \frac{3}{2} = 1\frac{1}{2}$
- 2.)
$$\begin{array}{r} 111 \\ 77 \overline{) 777} \\ \underline{-77} \\ 0 \end{array}$$
- 3.) acute (less than 90°)
- 4.) $7\frac{2}{5} = 8\frac{1}{5}$
- 5.) 100% of 18 = 18
 $18 - 11 = 7$ more books
- 6.) mean = average
$$\begin{array}{r} 137 \\ 155 \\ +149 \\ \hline 441 \end{array}$$

$$\begin{array}{r} 147 \\ 3 \overline{) 441} \\ \underline{-3} \\ 141 \\ \underline{-12} \\ 21 \end{array}$$
- 7.) $L = 3$ $w = 1.5$
 $3 \times 1.5 = 4.5 \text{ sq. in.}$
- 8.) $356 + -n = 86$
 -356
 $-n = -270$
 $n = 270$
- 9.) $\frac{2}{6}$ $\frac{3}{9}$ $\frac{5}{15}$ $\frac{6}{18}$ $\frac{7}{21}$
- 10.) $50 + 102 + 25 = 177$
- 11.) $\frac{1}{3} \times 4 = \frac{4}{3} = 1\frac{1}{3}$
- 12.) Hands on:
1 any of these


PROBLEM NUMBER:

7th Grade

	1	2	3	4	5	6	7	8	9	10	11	12
1	a. center b. radius c. diameter	<	$\frac{1}{2}$	$\frac{1}{8}$	540	130%	932	n = 6	a. 15 b. 15	a. C b. B	.001	Answers will vary
2	25%	16	26.56 sq. m.	$1\frac{1}{6}$	10 qts. 20 pts.	58	400 x 100 = 40,000	See below	n = 40	a. no b. yes	7	\$3,035.84
3	496	$7\frac{1}{2}$	ten thousandths	750,000	$1\frac{5}{12}, 2\frac{1}{12}$	millions	7.2	a. 5% b. 20% c. 50% d. 10%	141	c	4 lbs.	$2\frac{1}{2}$
4	a. $3\frac{2}{3}$ b. $1\frac{1}{2}$	111	acute	$8\frac{1}{5}$	7	147	4.5 sq. in.	\$270	$2\frac{3}{6}, 3\frac{5}{15}, 4\frac{6}{18}, 5\frac{7}{21}$	50 + 102 + 25	$1\frac{1}{3}$	 any of these 
5	a. $\frac{1}{2}$ b. $\frac{1}{4}$	83	.8	b	4 or -4	a. 1.5 b. 1.20	2 miles	$17\frac{7}{8}$	6	60%	15	\$50,000
6	316,000	a. 2 b. 3	731	25	a. 255 b. 540 c. 430	463	-6	32,000 ml	a. 1,940,000 b. 1,900,000 c. 2,000,000	a. 3 b. $\frac{3}{4}$	27 wpm	37,190016
7	a. $\frac{4}{7}$ b. $8\frac{1}{3}$	$1\frac{1}{6}$	\$6.00	00	32.8	$-\frac{7}{6}, -\frac{5}{3}, -\frac{3}{2}, -\frac{1}{3}, \frac{3}{4}$	50%	280	.77	49, 81, 10,000	a. 7 b. 5	22
8	6	a. $4\frac{1}{2}$ b. 6	4,000,000 + 6,000 + 80	\$34.56	4,369	See below	1	2,08, 2,30	5 tons	1,200	\$6,213	8.33 minutes
9	$8\frac{5}{12}$	4.2 + 4.2 + 4.2	3,000 m. 3 km.	$a\frac{1}{2}$ b. $\frac{5}{6}$	97	$33\frac{1}{3}\%$	10.9775	Yes	$13\frac{1}{2}\%$ or 13.5%	24	200 cm	37.5%
10	22.34 or 22.67 22.200	a. 32 b. 54,7936 c. 5786,29	See below	$3\frac{3}{4}$	a	$1\frac{3}{10}$	$3\frac{5}{8}$	200,000	c	128	9% interest	See below
11	a. $\frac{1}{3}$ b. $\frac{3}{8}$ c. $\frac{5}{12}$	a. $\frac{1}{30}$ b. $\frac{1}{3}$	9:35 am	a	$13\frac{4}{15}$	$\frac{9}{45}, \frac{10}{50}$	$9\frac{1}{4}$	76	See below	2,500	15,000 tickets	3 quarters 4 dimes
12	243	$30\frac{1}{8}$	-65°	$\frac{1}{6}$	n = 18	800,000 - 300,000 = 500,000	$\frac{3}{8}$	45 $\frac{5}{6}$ or 45.83	$\frac{1}{5}$	c	25	Answers will vary
13	507,207 +4	.82	821,000,000	$\frac{5}{8}$	176	See below	$\frac{5}{24}$	a. 32,300 b. 636	105°	.001, .004, .014, .041	\$17	7,458,361
14	a	$2\frac{4}{5}$	Perpendicular	$68\frac{5}{9}$ or 68.56	$\frac{13}{20}$	a. blue than yellow b. red as green	3,875,676	\$1.25	49, 36, 23 subtract 13	(-21)	\$2,000	\$780
15	$1\frac{2}{3}$	$\frac{1}{4}$ 25%	100 Times Larger	\$9.97	y = 184	b	a. > b. < c. =	b	b	$6\frac{1}{4}$	8:20 pm	Answers will vary

Lesson 2, # 8: $\frac{77}{11}$, 8% of 100, 3^3 , 100 ± 10

Lesson 10, # 3: four hundred eighty-three thousand five hundred fifty-two

Lesson 10 #12: .300, .303, .33, $33\frac{1}{3}\%$, .334

Lesson 8, # 6: $-\frac{1}{3}$, $-\frac{1}{4}$, $\frac{2}{5}$, $\frac{5}{8}$, $\frac{2}{3}$, $\frac{5}{6}$

Lesson 11, #9: $\frac{9}{10}$, $\frac{901}{1000}$, 91%, $\frac{93}{100}$

Lesson 13, # 6: Linda, Cheryl, Carolyn, Kathy