

6X & 6Y Summer 2018

Math Packet

2018

Dear 6th Grade Parents and Students,

We all know that over the summer, mathematical skills are often weakened which may result in a setback at the beginning of the school year. To avoid the need to play “catch-up” in the fall, an assignment has been prepared to help the students maintain their skills. This assignment is made up of concepts that have been taught in sixth grade and will provide students a thorough review of skills needed for seventh grade. It is important that this packet be completed to the best of their ability. The objective of this assignment is to help them succeed in the next school year.

All questions must have work to support the answers. Work can be done on the question paper, if work space is available. If not, work should be completed on loose leaf and attached to question paper. Do not squeeze work into a tiny area. Any assignment without work will be considered an incomplete assignment. This packet along with any loose leaf used to show work should be stapled together and submitted on the first day of school.

Thank you for your cooperation. Have a great summer!

Sincerely,

Mrs. Bushell -

Divide Decimals Hints/Guide:

Move the decimal point in the divisor (number outside the division box) until it is a whole number.

Move the decimal point in the dividend (number inside the division box) the same number of spaces.

Put the decimal point on the top of the division box.

Divide the numbers.

Example: $1692 \div 23.5$ (Remember the first number goes inside the division box.)

$$\begin{array}{r} 0.072 \\ \hline 23 \overline{) 5.16.920} \\ \underline{-1645} \\ 470 \\ \underline{-470} \\ 0 \end{array}$$

move the decimal in the divisor to the box (1 space)

move the decimal inside the box the same number of spaces (1 space)

Exercises: Divide the decimals. Show all work. Do not use a calculator.

1. $14.04 \div 0.52$
2. $6.93 \div 0.21$
3. $27.95 \div 0.43$
4. $0.2944 \div 0.032$
5. $0.4615 \div 7.1$
6. $7.626 \div 9.3$
7. $167.4 \div 0.062$
8. $7.31 \div 0.017$

ADDING FRACTIONS & MIXED NUMBERS (Show your work on loose leaf.)

Step 1: Change to a common denominator (Write the expression horizontally with a common denominator to add or subtract. Remember there is no need to change mixed numbers to improper fractions to add or subtract.)

Step 2: Add fractions

Step 3: Add whole numbers (if applicable)

Step 4: Simplify

Step 5: Check your answer by computing vertically on the right side of your loose leaf

1) $\frac{1}{2} + \frac{1}{4} =$

2) $\frac{2}{3} + \frac{5}{9} =$

3) $\frac{5}{9} + \frac{5}{6} =$

4) $6\frac{2}{3} + 5\frac{1}{2} =$

5) $4\frac{1}{3} + 3\frac{3}{4} =$

6) $5\frac{5}{6} + 4\frac{2}{3} =$

7) $4\frac{3}{4} + 6\frac{1}{2} =$

SUBTRACTING FRACTIONS & MIXED NUMBERS (Show your work on loose leaf.)

Step 1: Change to a common denominator (Write the expression horizontally with a common denominator to add or subtract. Remember there is no need to change mixed numbers to improper fractions to add or subtract.)

Step 2: Regroup (if necessary)

Step 3: Subtract

Step 4: Simplify

Step 5: Check your answer by computing vertically on the right side of your loose leaf

8) $\frac{3}{4} - \frac{1}{5} =$

9) $\frac{3}{4} - \frac{8}{15} =$

10) $\frac{9}{10} - \frac{3}{5} =$

11) $7\frac{3}{4} - 4\frac{1}{6} =$

12) $5\frac{3}{8} - 4\frac{3}{4} =$

13) $17\frac{1}{3} - 8\frac{1}{2} =$

14) $16 - 7\frac{2}{3} =$

MULTIPLYING FRACTIONS & MIXED NUMBERS (Show your work – use another piece of paper, if you need more room)

Step 1: Write mixed numbers and whole numbers as improper fractions (if applicable)

Step 2: Remember to look for cancellations

$$15) \frac{3}{4} \times \frac{4}{9} =$$

$$16) \frac{3}{4} \times \frac{2}{5} =$$

$$17) 24 \times \frac{5}{6} =$$

$$18) 2\frac{1}{4} \times \frac{1}{2} =$$

$$19) 3\frac{2}{3} \times 2\frac{3}{4} =$$

$$20) 2\frac{3}{8} \times 4\frac{7}{8} =$$

$$21) 2\frac{2}{7} \times 3\frac{1}{8} =$$

DIVIDING FRACTIONS & MIXED NUMBERS (Show your work – use another piece of paper, if you need more room)

Step 1: Write mixed numbers and whole numbers as improper fractions (if applicable)

Step 2: Change the division to multiplication by the reciprocal of the divisor

Step 3: Look for cancellations

$$22) \frac{6}{7} \div \frac{3}{7} =$$

$$23) \frac{3}{4} \div \frac{1}{2} =$$

$$24) 10 \div \frac{5}{6} =$$

$$25) 8 \div 2\frac{1}{4} =$$

$$26) 7\frac{2}{3} \div 1\frac{1}{6} =$$

$$27) 9\frac{2}{3} \div 2\frac{1}{6} =$$

$$28) 5\frac{7}{8} \div 1\frac{3}{4} =$$



Reducing Ratios

Name: _____

Reduce each ratio to its lowest form.

Answers

Ex) 50 : 35 _____ 1) 49 : 21 _____ 2) 42 : 54 _____

Ex. _____

3) 12 : 32 _____ 4) 45 : 20 _____ 5) 15 : 24 _____

1. _____

2. _____

6) 12 : 8 _____ 7) 2 : 16 _____ 8) 35 : 28 _____

3. _____

4. _____

5. _____

9) 20 : 36 _____ 10) 14 : 63 _____ 11) 27 : 36 _____

6. _____

7. _____

8. _____

9. _____

10. _____

12) 70 : 10 _____ 13) 10 : 60 _____ 14) 42 : 30 _____

11. _____

12. _____

13. _____

15) 48 : 42 _____ 16) 90 : 10 _____ 17) 9 : 18 _____

14. _____

15. _____

18) 5 : 20 _____ 19) 64 : 72 _____ 20) 42 : 12 _____

16. _____

17. _____

18. _____

19. _____

20. _____



Understanding Ratios

Name: _____

Solve each problem.

- 1) A recipe called for the ratio of sugar to flour to be 5 : 1. If you used 35 ounce of sugar, how many ounces of flour would you need to use?
- 2) A teacher had 21 red pens. If the ratio of red pens to blue pens she owned was 3 : 1, how many pens did she have total?
- 3) A chess player played 20 games total. If he won 2 of the games, what is the ratio of games he lost to games he won?
- 4) At a pet store the ratio of cats to dogs sold was 10 : 1. If there were 60 cats that were sold, how many dogs were sold?
- 5) At a restaurant the ratio of kids meals sold to adult meals sold was 5 : 4. If there were 20 kids meals sold, what is the combined amount of kids and adult meals sold?
- 6) A student bought 34 pencils for school. If he sharpened 16 of the pencils before school, what is his ratio of unsharpened pencils to sharpened pencils?
- 7) A buffet offers ranch or caesar dressing. The ratio of ranch dressing used to caesar dressing used is 8 : 3. If the buffet uses 72 cases of ranch dressing, how many cases of caesar do they use?
- 8) A student finished 72 of her homework problems in class. If the ratio of problems she finished to problems she still had left was 8 : 1, how many homework problems did she have total?
- 9) At a carnival Cody bought 15 tickets. If he used 6 tickets trying to win the ring toss game, what is the ratio of tickets he has to tickets he's used?
- 10) At a farm the ratio of cows to horses was 10 : 3. If there were 20 cows at the farm, how many horses were there?

Answers

1. _____
2. _____
3. _____
4. _____
5. _____
6. _____
7. _____
8. _____
9. _____
10. _____

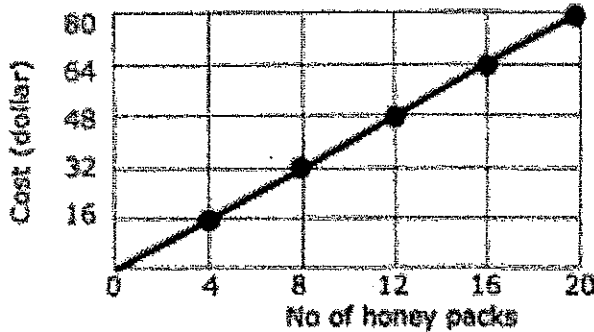
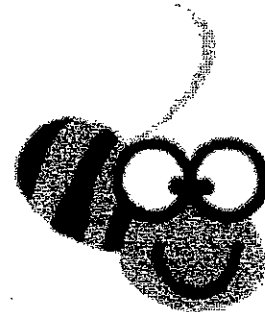
Name _____

Date _____

Graphs of Proportional Relationship - Guided Lesson

Complete the following problems:

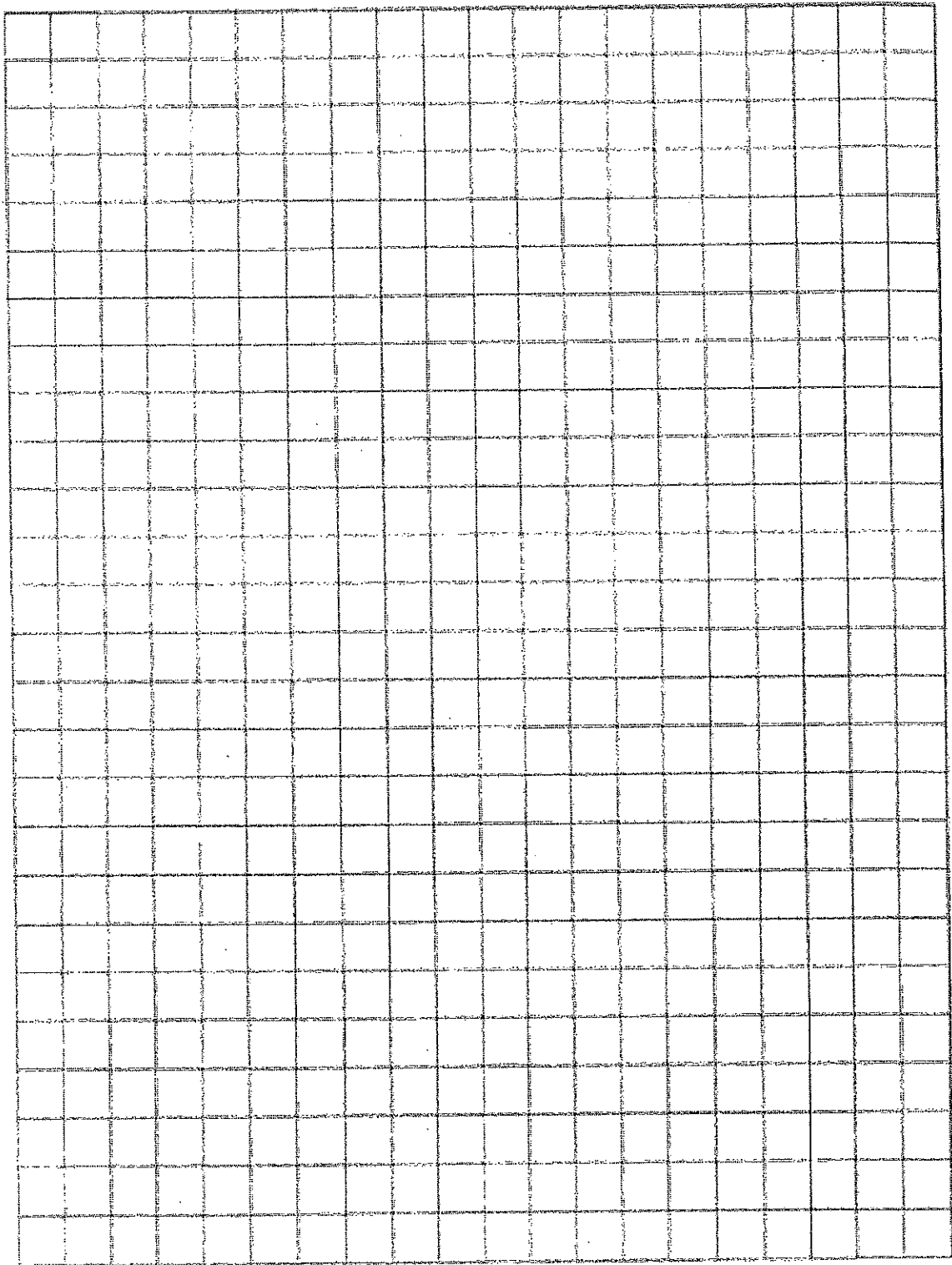
1) The graph below represents the cost of packs of honey as a unit rate of \$4 dollars for every pack of honey. The unit rate is represented as \$4/pack. Represent the relationship using a table and an equation.

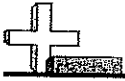


2) Andrew brought packs of biscuit. Create a graph to determine if the number of packs and price are proportional for each serving size listed in the table. If the quantities are proportional, what is the constant of proportionality or unit rate that defines the relationship? Explain how the constant of proportionality was determined and how it relates to both the table and graph.

Date	1	2	3	4
Packed of Biscuit	1	2	3	4
Price	8	16	24	32



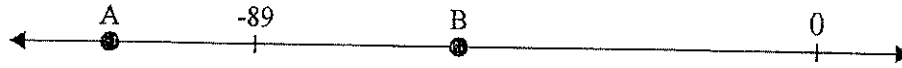




Solve each problem.

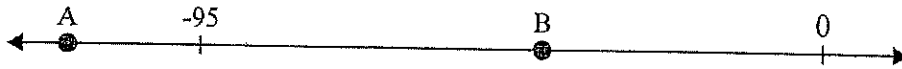
Answers

1) Which letter best shows -112?



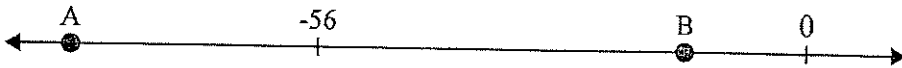
1. _____

2) Which letter best shows -43?



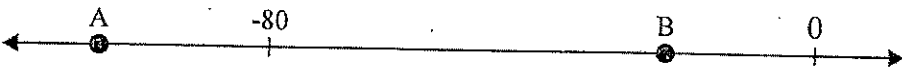
2. _____

3) Which letter best shows -84?



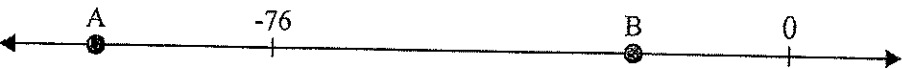
4. _____

4) Which letter best shows -105?



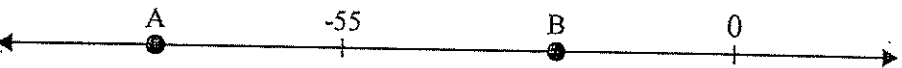
6. _____

5) Which letter best shows -102?



7. _____

6) Which letter best shows -25?



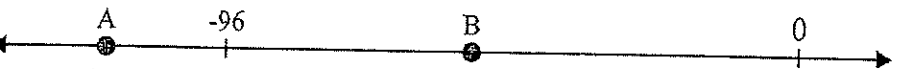
8. _____

7) Which letter best shows -10?



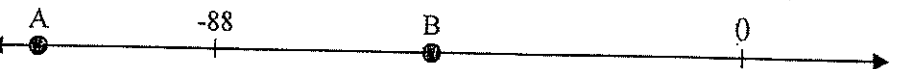
9. _____

8) Which letter best shows -116?



10. _____

9) Which letter best shows -52?



10) Which letter best shows -123?



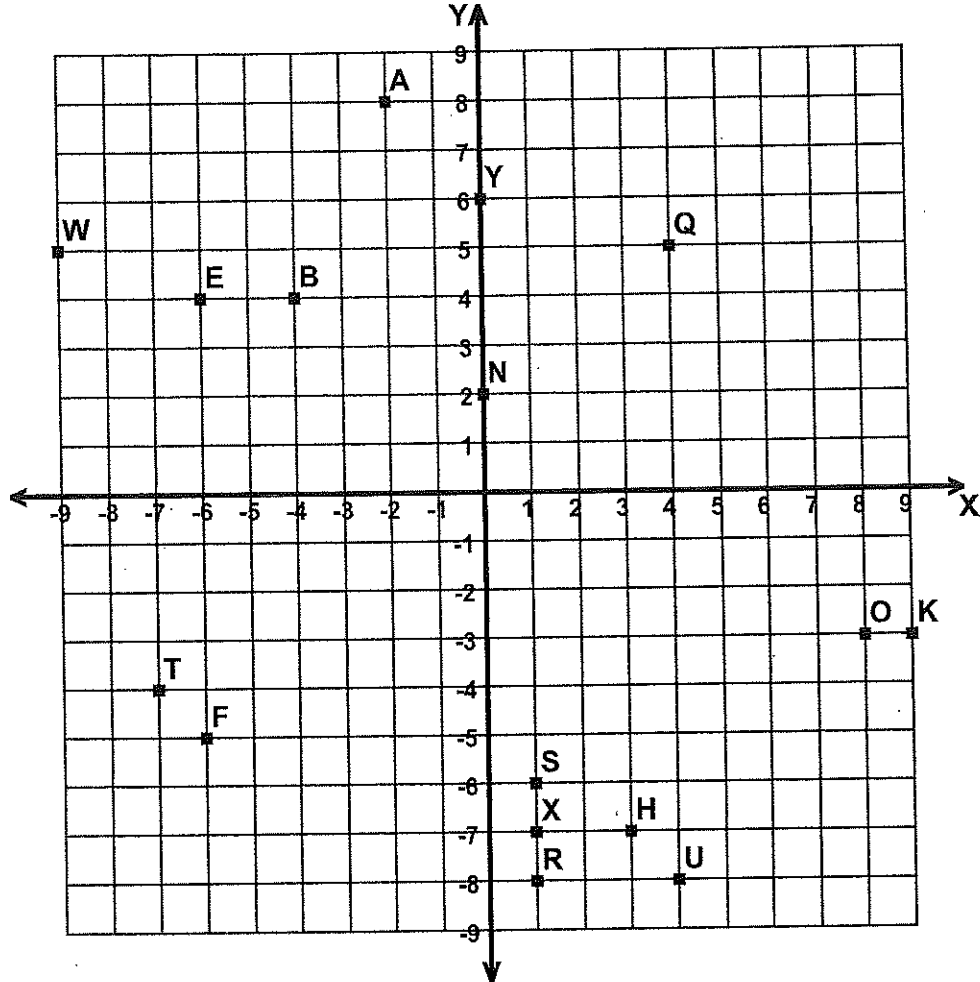
Name : _____

Score : _____

Teacher : _____

Date : _____

Four Quadrant Ordered Pairs



Tell what point is located at each ordered pair.

- 1) $(+9, -3)$ _____
- 2) $(+4, -8)$ _____
- 3) $(+0, +2)$ _____
- 4) $(+1, -8)$ _____
- 5) $(+0, +6)$ _____
- 6) $(-7, -4)$ _____
- 7) $(+1, -7)$ _____
- 8) $(-6, +4)$ _____

Write the ordered pair for each given point.

- 9) Q _____
- 10) O _____
- 11) H _____
- 12) F _____
- 13) A _____
- 14) B _____
- 15) S _____
- 16) W _____

Plot the following points on the coordinate grid.

- 17) J $(+5, +8)$
- 18) M $(-3, -9)$
- 19) C $(-9, +4)$
- 20) V $(-8, -5)$
- 21) G $(+9, -6)$
- 22) Z $(+5, -6)$
- 23) P $(+8, -9)$
- 24) I $(-9, -4)$



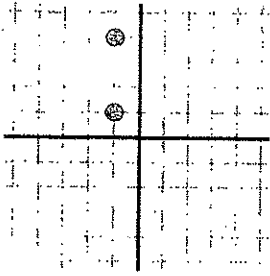


Finding Distance on a Grid

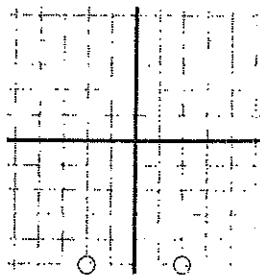
Name: _____

Find the distance between points.

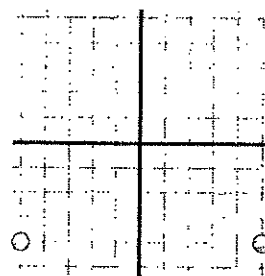
Ex)



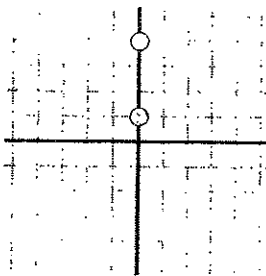
1)



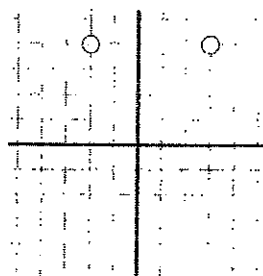
2)



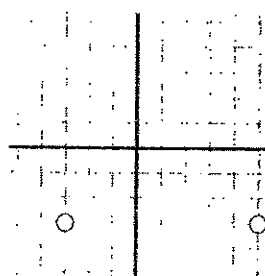
3)



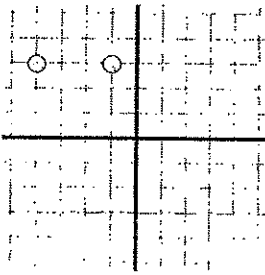
4)



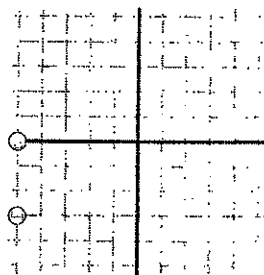
5)



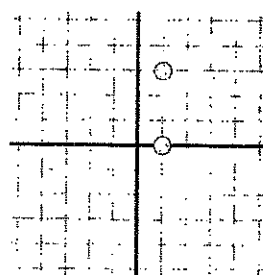
6)



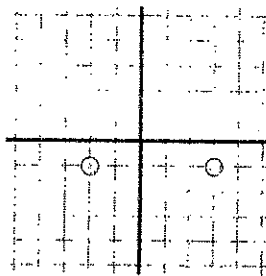
7)



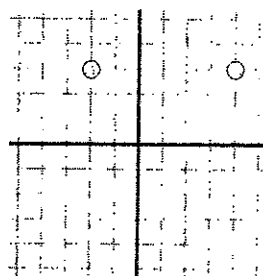
8)



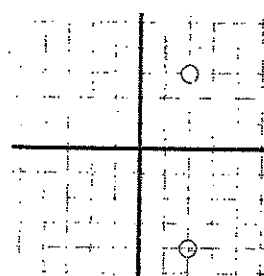
9)



10)



11)



Answers

- Ex. 1
- 1. _____
- 2. _____
- 3. _____
- 4. _____
- 5. _____
- 6. _____
- 7. _____
- 8. _____
- 9. _____
- 10. _____
- 11. _____

Name _____

Common Core Standards Practice

6.NS.C.5 Understand that positive and negative numbers are used together to describe quantities having opposite directions or values (e.g., temperature above/below zero, elevation above/below sea level, credits/debits, positive/negative electric charge); use positive and negative numbers to represent quantities in real-world contexts, explaining the meaning of 0 in each situation.

- | | |
|--|---|
| <p>1. Which of the following represents a negative number? Circle all that apply.</p> <ul style="list-style-type: none">A deposit of \$75B an increase of 2 inches in heightC a debt of \$2D a loss of 5 pounds in weight | <p>2. Temperature can be measured in degrees Fahrenheit ($^{\circ}\text{F}$). Which of these temperatures is the coldest?</p> <ul style="list-style-type: none">A 10°FB 0°FC 5°FD -10°F |
|--|---|

3. Write an integer to represent 25 feet underground. Explain your answer.

4. Write an integer to represent a rise of 150 feet. Explain your answer.

5. During a football game, Howard's team gained 14 yards in one play and lost 12 yards in the next play. Write integers to represent the two plays.



6. Which of the following can be represented with -8 ? Circle all that apply.
- A A loss of \$8
 - B A rise of 8 feet up to sea level.
 - C A temperature 8 degrees below zero
 - D An oil drill digging 8 miles below the surface
 - E A deposit of \$8 in a bank account
 - F A change in temperature from 56°F to 64°F
7. Last week, Cy earned slightly more money than he spent. Is his net income represented by a positive number or a negative number? Explain.
8. A submarine travels 875 feet below sea level. Should the depth be represented by a positive number or a negative number? Explain.
9. During the day, the temperature changes from -5°F to $+5^{\circ}\text{F}$.
- a. Does the temperature become warmer or cooler?
 - b. Was the temperature that day ever 0°F ? Explain how you know.

Name _____

Solving Addition and Subtraction Equations

Explain how to get the variable alone in each equation.

1. $n + 10 = 100$
 $n + 10 - 10 = 100 - 10$

2. $x - 75 = 49$
 $x - 75 + \underline{\quad} = 49 + \underline{\quad}$

Solve each equation and check your answer.

3. $g - 8 = 25$

4. $25 + y = 42$

5. $r + 82 = 97$

6. $30 = m - 18$

7. $150 = e + 42$

8. $a - 51 = 12$

9. Jo loaned Al \$15. She had \$15 left. Solve the equation $15 = s - 15$ to find how much money Jo had before she made the loan.

A \$0

B \$15

C \$30

D \$60

10. **Critical Thinking** If $n + 10 = 40$, then what is the value of the expression $n - 25$?

A 5

B 25

C 30

D 50

11. **Writing to Explain** Explain how to solve the equation $35 + p = 92$. Then solve.

Name _____

Solving Addition and Subtraction Equations

Explain how to get the variable alone in each equation.

1. $n + 1.1 = 22.3$

$n + 1.1 - 1.1 = 22.3 - 1.1$

2. $x - 6.7 = 28.8$

$x - 6.7 + \underline{\hspace{2cm}} = 28.8 + \underline{\hspace{2cm}}$

3. $g - 3.2 = 20$

4. $31.7 + y = 54.4$

5. $r + 16.9 = 88.2$

6. $3.9 = m - 22.1$

7. $100 = e + 91.8$

8. $a - 31 = 12.6$

9. Tom drove 11.8 miles in the morning. He drove more in the afternoon. He drove 32.4 miles in all. Which equation could you use to find how far Tom drove in the afternoon?

A $11.8 + 32.4 = m$

B $11.8 + m = 32.4$

C $11.8 - m = 32.4$

D $m - 32.4 = 11.8$

10. **Critical Thinking** If $n + 10 = 45.5$, then what is the value of the expression $n - 25$?

A 10.5

B 25

C 25.5

D 45.5

11. **Writing to Explain** Explain how to solve the equation $4.8 + p = 12.2$. Then solve.

Name _____

Solving Multiplication and Division Equations

For 1 through 3, explain how to get the variable alone in each equation.

1. $r \times 7 = 42$
 $r \times 7 \div 7 = 42 \div 7$

2. $m \div 6 = 12$
 $m \div 6 \times \underline{\quad} = 12 \times \underline{\quad}$

3. $44 = 2k$

For 4 through 9, solve the equation. Check your answer.

4. $9n = 72$

5. $y \times 5 = 60$

6. $v \div 13 = 2$

7. $w \div 7 = 15$

8. $216 = 36p$

9. $17 = t \div 3$

10. **Writing to Explain** Tell how you would get the variable m alone on one side of the equation $15m = 45$.

11. **Write a Problem** Write a problem that can be solved with the equation $r \div 6 = 14$.

12. **Number Sense** Which equation can you use to solve this problem?

There are 12 muffins in a package. Will bought 84 muffins. How many packages did he buy?

A $12 \times p = 84$

B $84 \times 12 = p$

C $12 \div p = 84$

D $84 = 12 + p$

Name _____

Solving Equations with Decimals

Explain how to get the variable alone in each equation.

1. $7n = 6.3$

2. $x \div 3.2 = 8$

3. $67.3 = 3.2q$

For 4 through 9, solve each equation. Check your answers.

4. $x \div 8 = 5.6$

7. $56 = 1.4t$

5. $p \times 3.4 = 7.48$

8. $n \div 2.1 = 12$

6. $4z = 50.8$

9. $5 = s \div 3.7$

10. Sonja purchased some pens that cost 65 cents each. She spent a total of \$9.10. How many pens did she purchase? Write an equation to describe the situation and solve.

11. **Critical Thinking** If $32n = 99.2$, then what is the value of the expression $8n$?

A 3.1

B 12.4

C 24.8

D 32

12. Which equation has the same solution as $m \div 2.6 = 3.5$?

A $m \div 3.5 = 2.6$ C $2.6m = 3.5$ B $m \div 9.1 = 2.6$ D $3.5m = 2.6$

13. **Writing to Explain** Tell how you would get the variable p alone on one side of the equation $32.4 = 4p$.
