

Summer Math Packet for Students Entering Algebra 1

This packet was designed for you to practice the mathematical skills that all Algebra 1 students are expected to have mastered coming into the course. Take some time this summer to prepare by completing all of the problems in the packet, reviewing when necessary. No calculator is allowed. An answer key is attached to check your answers. If you incorrectly answered a question, rework the problem until your answer is correct. The packet is due on the first day of class and will be entered as a grade.

List of skills to be mastered:

- Multiply whole numbers between 1 and 12
- Operations with signed numbers
- Find the greatest common factor (GCF) and least common multiple (LCM)
- Divisibility rules
- Perfect square list of the numbers 1 through 20
- Convert decimals to fractions to percents
- Operations with fractions
- Ratios
- Order of operations
- Distributive property
- Combine like terms
- Evaluate expressions
- Solve basic one- and two-step equations
- Proportions
- Problems involving the percent of a number
- Translating verbal expressions to algebraic expressions
- Comparing real numbers including absolute values
- Estimating
- Identifying coordinates on a coordinate plane
- Slope
- Scientific notation

Multiplying signed numbers.



Find the product.

1) $6 \times (-4) =$	2) $(6)(9) =$
3) $(-3) \cdot (-12) =$	4) $(-5)(2)(-10) =$
5) $6 \times (-2) \times (7) =$	6) $9 \cdot 6 \cdot 10 =$
7) $(-4) \times (-4) \times (-8) =$	8) $(12)(11) =$
9) $10 \cdot (-3) \cdot 2 =$	10) $(8)(8)(10) =$

Find the sum or the difference.

1) $16 + (-4) =$	2) $20 - (-8) =$
3) $-50 + (-13) =$	4) $3 + (-5) - (-7) =$
5) $-(-10) + 18 =$	6) $45 - 10 + 5 =$
7) $-16 + 22 - 8 =$	8) $7 + 7 - (-14) =$
9) $-49 - 2 =$	10) $10 - 2 - 3 + (-5) =$

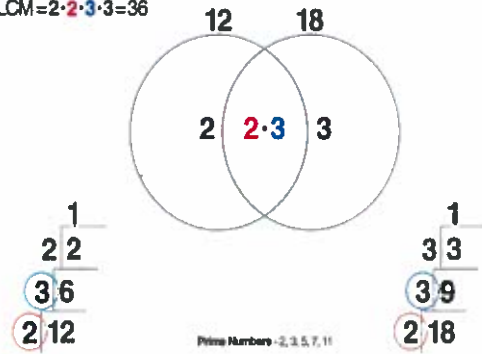
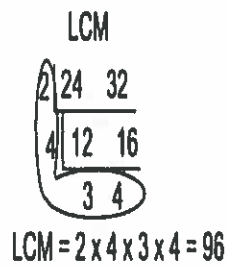
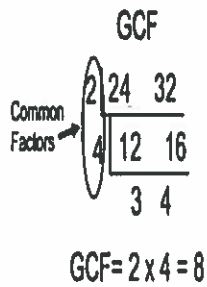
- 1) A bank account has an account balance of \$800. You deposit \$250, then withdraw \$400 and \$150. Is there a positive or negative balance in the account? Find the balance.
- 2) Maria starts at point A and walks 8 km south, then 19km north, and then 3 km south. How far is she from her starting point? Write an expression using negative and positive numbers; let north be positive and south be negative.

GCF and LCM

Find the Greatest Common Factor (GCF) and Least Common Multiple (LCM) of 24 and 32.

$$\text{GCF} = 2 \cdot 3 = 6$$

$$\text{LCM} = 2 \cdot 2 \cdot 3 \cdot 3 = 36$$



	Greatest Common Factor	Least Common Multiple
1) 60 and 66		
2) 44 and 14		
3) 7 and 56		
4) 20 and 22		
5) 18 and 42		
6) 16 and 60		
7) 5 and 40		
8) 12 and 48		

Simplify both expressions and then compare using the symbol $<$, $>$, or $=$.

1) $ -6 $ ____ -6	2) $28 \cdot (-2) \div (4)$ ____ $(-14) \cdot (-2) \cdot (-1)$
3) $- 10 $ ____ $ 15 - 10 $	4) $17 - (-8)$ ____ $14 + 11$

Adding/Subtracting Fractions



Simplify.

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

$$2) \frac{4}{5} + \frac{7}{5} =$$

$$3) \frac{3}{2} + \frac{1}{3} =$$

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

$$5) \frac{6}{7} + \frac{3}{14} =$$

$$6) -10\frac{1}{8} + (-4\frac{5}{8}) =$$

$$7) \frac{9}{12} - \frac{5}{12} =$$

$$8) \frac{7}{6} - \frac{2}{3} =$$

$$9) \frac{4}{5} - \frac{2}{15} =$$

$$10) \frac{7}{3} - \frac{8}{5} =$$

$$11) 2\frac{7}{12} - 9\frac{2}{3} =$$

$$12) -\frac{5}{11} + 3 =$$

$$13) \frac{4}{5} + \frac{7}{5} + \frac{4}{5} =$$

$$14) 9\frac{1}{3} - \frac{2}{5} + 1 =$$

$$15) \frac{3}{10} + \frac{4}{5} - (-\frac{1}{10}) =$$

$$16) \frac{1}{7} - 3\frac{2}{7} + \frac{1}{2} =$$

$$17) \frac{1}{2} - 3\frac{1}{2} + \frac{4}{5} =$$

$$18) \frac{2}{13} - \frac{3}{13} + \frac{1}{2} =$$

Multiplying/Dividing Fractions



Simplify.

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

$$2) \frac{8}{7} \cdot \frac{7}{10} =$$

$$3) \frac{4}{9} \cdot \frac{7}{4} =$$

$$4) \frac{2}{3} \cdot \frac{5}{4} =$$

$$5) -2 \cdot \frac{3}{7} =$$

$$6) -\frac{2}{3} \cdot \left(-\frac{1}{10}\right) =$$

$$7) -\frac{1}{4} \cdot 9 =$$

$$8) \frac{13}{5} \cdot \frac{5}{6} =$$

$$9) \frac{4}{17} \cdot 5 =$$

$$10) -\frac{8}{11} \cdot \left(-\frac{8}{11}\right) =$$

$$11) \frac{7}{4} \cdot \left(-\frac{8}{28}\right) =$$

$$12) \frac{3}{16} \cdot \frac{2}{3} =$$

$$13) \frac{-1}{5} \div \frac{7}{4} =$$

$$14) \frac{-1}{2} \div \frac{5}{4} =$$

$$15) \frac{-3}{10} \div \frac{-10}{7} =$$

$$16) \frac{9}{2} \div 2 =$$

$$17) \frac{1}{2} \div \frac{8}{7} =$$

$$18) -2 \div \frac{4}{5} =$$

$$19) \frac{19}{5} \div \frac{1}{5} =$$

$$20) \frac{6}{7} \div (-9) =$$

$$21) \frac{10}{11} \div (-40) =$$

$$22) \frac{2}{3} \cdot \frac{6}{5} \div \frac{1}{9} =$$

$$23) -\frac{1}{2} \div \frac{7}{4} \cdot (-3) =$$

$$24) \frac{-37}{10} \div \frac{1}{10} \times \frac{2}{11} =$$

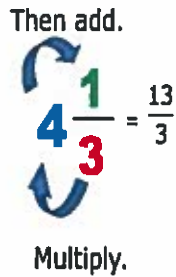
Mixed Numbers and Improper Fractions; Decimals and Percents



Converting a Mixed number to an Improper fraction

Multiply the whole number by the denominator and add the numerator.

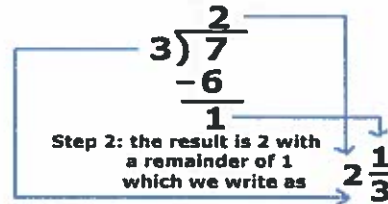
Keep the same denominator.



Converting Improper Fractions to Mixed Numbers

$$\frac{7}{3} = 2\frac{1}{3}$$

Step 1: Set-up a division problem and divide 7 by 3



Convert the improper fraction to a mixed number.

1. $\frac{17}{6} =$

2. $\frac{28}{9} =$

3. $\frac{13}{2} =$

4. $\frac{45}{7} =$

5. $\frac{65}{8} =$

6. $\frac{61}{11} =$

Convert the mixed number to an improper fraction.

7. $4\frac{1}{5} =$

8. $8\frac{2}{3} =$

9. $9\frac{3}{7} =$

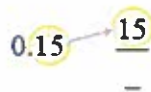
10. $3\frac{5}{11} =$

11. $10\frac{4}{5} =$

12. $7\frac{3}{4} =$

Convert the decimal to a fraction.

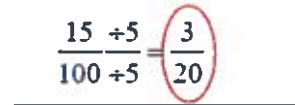
1 Create the top



2 Create the bottom



3 Reduce the fraction



13. 0.6

14. 0.15

15. 2.5

16. 0.125

17. 4.55=

18. 0.08

Convert the fraction to a decimal.

19. $\frac{4}{5} =$

20. $\frac{7}{8} =$

21. $\frac{3}{10} =$



22. $\frac{4}{9} =$

23. $\frac{16}{25} =$

24. $\frac{8}{20} =$

Convert the percent to a fraction and then to a decimal.

25. 25%

26. 40%

27. 72%

28. 102%

29. 22%

30. 6.5%

Ratios



Write each ratio in simplest terms.

1.

What is the ratio of pentagons to circles?



____ : ____ or ____ / ____

2.

What is the ratio of triangles to stars?



____ : ____ or ____ / ____

Fill in the missing information.

3. At the malt shop, the ratio of hot dogs sold to hamburgers sold was 2:7. For every _____ hamburgers sold, there were _____ hot dogs sold.

4. In a bag of candy, the ratio of chocolate pieces to sugar pieces was 7:2. For every _____ chocolate pieces, there are _____ sugar pieces.

5. For every 5 dogs at the pet shelter, there are 3 cats. What is the ratio of dogs to cats?

____ : ____ or ____ / ____

6. For every 3 regular sodas a burger shop sold, there were 9 diet sodas sold. What is the ratio of regular sodas sold to diet sodas sold?

____ : ____ or ____ / ____

Fill in the blank to make an equivalent ratio.

7. ____ : 7 = 8 : 14

8. 30 : 36 = 5 : ____

9. ____ : 4 = 30 : 24

10. 6 : 2 = ____ : 18

Determine if the statements are true or false.



11. Diet sodas = 2 , Regular sodas = 9

- A. The ratio of diet sodas to regular sodas sold is 2:9
- B. The ratio of diet sodas to regular sodas sold is 9:2
- C. For every 2 diet sodas sold there are 9 regular sodas sold
- D. The ratio of regular sodas to diet sodas sold is 9:2

12. Cats = 2 , Dogs = 8

- A. For every 8 cats there are 2 dogs
- B. The ratio of cats to dogs is 2:8
- C. The ratio of dogs to cats is 8:2
- D. The ratio of cats to dogs is 8:2

13. Texts sent = 8 , Calls made = 5

- A. The ratio of texts sent to calls made was 8:5
- B. The ratio of texts sent to calls made was 5:8
- C. For every 5 texts sent there were 8 calls made
- D. For every 8 calls made there were 5 texts sent

Order of Operations

Simplify the expression. If your answer is a fraction, write the answer in reduced form.



1. $40 \div 1 + 3 - (3 \times 7) + 7 - 5$ 2. $7 \times 7 + 1 + 16 \div 8 - (6 - 7)$ 3. $(15 \div 5 + 6 + 9) \times 4 \times 2 + 7$

4. $2 + 5^2 + 59$

5. $-5 \cdot (-3)^2 + 16$

6. $5^2 + \left(\frac{1}{4} + \frac{7}{4}\right)^2$

7. $30 - (18 + 6 \div 3) \times \left(\frac{1}{5}\right)^2$

8. $-7^2 + 32 + \frac{(85-10)}{5}$

9. $[(120 \div 10 + 6) - (-2)] \div \left(\frac{1}{2}\right)^3$

Distributive Property



Simplify each expression.

1. $-6(x + 2)$

2. $3(2m + 5n)$

3. $(-9r + 4) \cdot 8$

4. $\frac{3}{4}(16x - 8)$

5. $-7(-10x - 9)$

6. $-\frac{1}{2}(-4a + 3b)$

Combining Like Terms

Simplify each expression.

7. $7x + 9x - 4x$

8. $15s - (-2s) + 4t$

9. $\frac{4}{3}x + \frac{11}{3}x - 6x$

10. $x + 2x + 4y - (-8y)$

11. $7a + \frac{1}{5}b - \frac{1}{2}b - 9a$

12. $m + 2n + m + 4m - 5n - 8$

Simplify each expression.

13. $-4(x - 8) + 7x$

14. $\frac{4}{5}(-10x + 15) - 2$

15. $11 + 3(x - 9)$

16. $\frac{2}{3}(6x + 9) + 4x - 8$

17. $-2(2n + 4) + 7(n + 1)$

18. $5(a + 3b) - 1(2a - 6b)$

Evaluating Expressions



Evaluate the expressions when $x = 3$, $y = -2$, $z = \frac{1}{4}$. Write your answer in reduced fraction form, if necessary.

1. $5x + x - 10$

2. $-2x - 6x + 18$

3. $x(7 + y) - x$

4. $y(x + 3) + 8z$

5. $z + y - \frac{1}{2}$

6. $10 - y + x(3 + y)$

7. $\frac{7-x}{y}$

8. $(3 + y) \div z$

9. $x^2 - y^2$

10. $5x - \frac{x}{y}$

11. $xz \div z$

12. $y^2 + \frac{2}{3} + z$

Solving Equations



Find the value of each variable by solving each equation.

1. $v - 10 = -9$	2. $s - 10 = -3$	3. $x + 3 = 4$
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4. $\frac{x}{5} = 2$	5. $-11k = 22$	6. $\frac{3}{4}m = -9$
7. $4n - 9 = 1$	8. $7x + 10 = -10$	9. $\frac{z}{2} - 7 = 2$

Proportions

Solve the proportion for the given variable. Write your answer in reduced fraction form.



1. $\frac{10}{k} = \frac{8}{4}$	2. $\frac{m}{5} = \frac{12}{20}$	3. $\frac{2}{c} = \frac{4}{9}$
4. $\frac{6}{a} = \frac{3}{-8}$	5. $\frac{12}{5} = \frac{4c}{10}$	6. $\frac{6x}{5} = \frac{2}{3}$

Percent Problems

Solve each problem.

1. What is 10% of 90?	2. What is 20% of 65?	3. What percent of 70 is 35?
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4. 150 is 40% of what number?	5. What percent of 48 is 12?	6. 200% of 85 is what number?
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Translating Algebraic Models



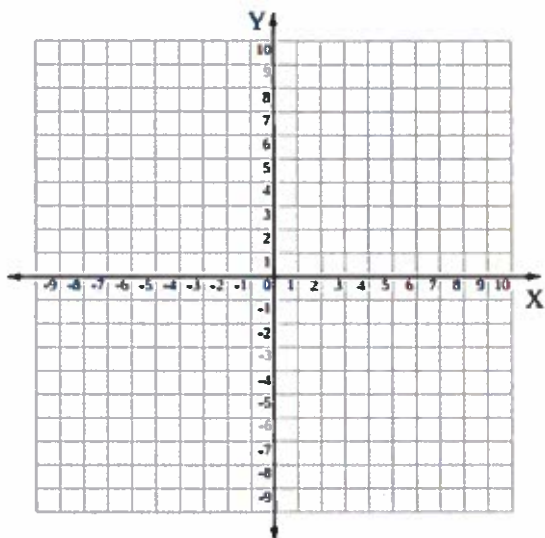
Translate the verbal model into an algebraic expression.

1. The product of five and a number z	2. A number p less than two	3. The difference of a number k and six
4. The sum of a number x and eleven	5. The quotient of a number y and four	6. The product of 7 and the sum of the number q and 10
7. The product of 7 and the difference of a number x and 1	8. Double the sum of a number w and 3	9. One-fourth of a number t increased by 5

Coordinates on a Coordinate Plane

Graph and label by letter each of the coordinates on the coordinate plane.

A (0, 5)	B (-4, 1)	C (-2, -2)	D (6, 0)
E (1, -3)	F (0, 0)	G (-1, 6)	H (-5, -3)



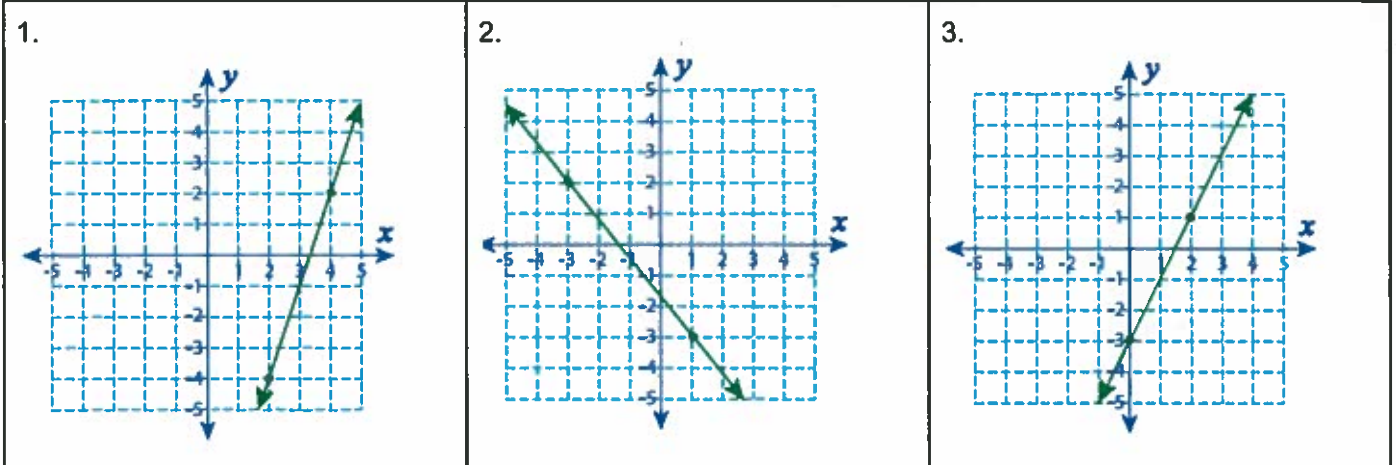
1. Which point(s) are graphed on the origin?
2. Which point(s) are graphed on the x-axis?
3. Which point(s) are graphed on the y-axis?
4. Which point(s) are graphed in quadrant I?
5. Which point(s) are graphed in quadrant II?
6. Which point(s) are graphed in quadrant III?
7. Which point(s) are graphed in quadrant IV?

Slope

$$m = \frac{\text{Change in } y}{\text{Change in } x} = \frac{\text{Rise}}{\text{Run}} = \frac{y_2 - y_1}{x_2 - x_1}$$



Determine the slope of the line graphed. Label each slope $m =$ _____.



Determine the slope of the line from two points. Label each slope $m =$ _____.

4. (9, 5) and (1, 2)	5. (7, 10) and (6, 8)	6. (11, 3) and (8, 0)
7. (-5, 1) and (4, 2)	8. (-6, -6) and (5, -6)	9. (-13, -7) and (-13, -4)

Application.

10. A climber is on a hike. After 2 hours, he is at an altitude of 400 feet. After 6 hours, he is at an altitude of 700 feet. What is the average rate of change?

- a. Write two ordered pairs to model the application.

- b. Use the slope formula to determine the rate of change.

11. Michael started a savings account with \$300. After 4 weeks, he had \$350 dollars, and after 8 weeks, he had \$400. What is the rate of change of money in his savings account per week?

- a. Write two ordered pairs to model the application.

- b. Use the slope formula to determine the rate of change.

Scientific Notation.

Write the given number in scientific notation.

1. 0.000006	2. 5,400,000	3. 0.0000002
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Write the given number in decimal form.

4. 2.66×10^4	5. 7.5×10^{-5}	6. 4×10^0
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7. True or false. The number 804×10^2 is correctly written in scientific notation.
8. True or false. The number 2.66×10^4 is correctly written in scientific notation.
9. Mr. Griffin's class is studying the solar system. The circumference of the Earth at the equator is about 24,900 miles. Express this number in scientific notation.
10. In 2013 the Los Angeles Dodgers opening day payroll was about $\$2.16 \times 10^8$ and the Houston Astros opening day payroll was about $\$2.4 \times 10^7$. How much higher was the Dodgers' payroll?
11. A TV show had 3.5×10^6 viewers for their first episode and 8.5×10^6 viewers for their second episode. How many viewers did they have overall?
12. The speed of an airplane was 2,000 mph for 7 hours. How far did the airplane travel? Write your answer in scientific notation.

Answer Key



Multiplying signed numbers.

Find the product.

1) $6 \times (-4) = -24$	2) $(6)(9) = 54$
3) $(-3) \cdot (-12) = 36$	4) $(-5)(2)(-10) = 100$
5) $6 \times (-2) \times (7) = -84$	6) $9 \cdot 6 \cdot 10 = 540$
7) $(-4) \times (-4) \times (-8) = -128$	8) $(12)(11) = 132$
9) $10 \cdot (-3) \cdot 2 = -60$	10) $(8)(8)(10) = 640$

Find the sum or the difference.

1) $16 + (-4) = 12$	2) $20 - (-8) = 28$
3) $-50 + (-13) = -63$	4) $3 + (-5) - (-7) = 5$
5) $-(-10) + 18 = 28$	6) $45 - 10 + 5 = 40$
7) $-16 + 22 - 8 = -2$	8) $7 + 7 - (-14) = 28$
9) $-49 - 2 = -51$	10) $10 - 2 - 3 + (-5) = 0$

- 1) A bank account has an account balance of \$800. You deposit \$250, then withdraw \$400 and \$150. Is there a positive or negative balance in the account? Find the balance.

$$\begin{array}{r} 800 \\ + 250 \\ \hline 1050 \end{array}$$

$$\begin{array}{r} 1050 \\ - 550 \\ \hline 500 \end{array}$$

Positive. \$500.

- 2) Maria starts at point A and walks 8 km south, then 19 km north, then 3 km south. How far is he from his starting point? Write an expression using negative and positive numbers; let north be positive and south be negative.

$$-8 + 19 - 3 = 8 \text{ km north}$$

Divisibility Rules

DIVISION HINTS

2 When a number is even (ending in 0, 2, 4, 6, or 8).

3 When the sum of a number's digits is divisible by 3.
Example: 462 $4+6+2=12$

4 When a number's last two digits are divisible by 4.
Example: 12,624 ends in 24.

5 When a number ends in 0 or 5.

6 When a number is divisible by both 2 and 3.
Example: 9,042 is divisible by 2 and 3.

8 When the last three digits of a number are divisible by 8.
Example: 7,168 ends in 168.

9 When the sum of a number's digits is divisible by 9.
Example: 5,643 $5+6+4+3=18$

10 When a number ends in 0.



By which numbers is each given value divisible? Circle all that apply.

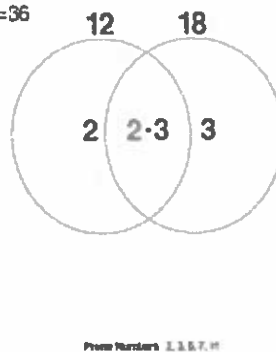
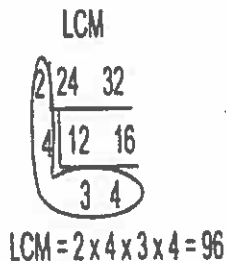
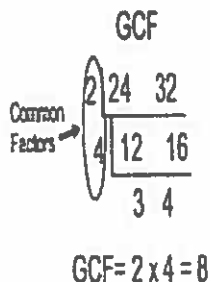
Number	Divisible by							
15	<input checked="" type="checkbox"/> 1	<input type="checkbox"/> 2	<input checked="" type="checkbox"/> 3	<input type="checkbox"/> 4	<input checked="" type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 9	<input type="checkbox"/> 10
27	<input checked="" type="checkbox"/> 1	<input type="checkbox"/> 2	<input checked="" type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input checked="" type="checkbox"/> 9	<input type="checkbox"/> 10
36	<input checked="" type="checkbox"/> 1	<input checked="" type="checkbox"/> 2	<input checked="" type="checkbox"/> 3	<input checked="" type="checkbox"/> 4	<input type="checkbox"/> 5	<input checked="" type="checkbox"/> 6	<input checked="" type="checkbox"/> 9	<input type="checkbox"/> 10
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28	<input checked="" type="checkbox"/> 1	<input checked="" type="checkbox"/> 2	<input type="checkbox"/> 3	<input checked="" type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 9	<input type="checkbox"/> 10
57	<input checked="" type="checkbox"/> 1	<input type="checkbox"/> 2	<input checked="" type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 9	<input type="checkbox"/> 10
102	<input checked="" type="checkbox"/> 1	<input checked="" type="checkbox"/> 2	<input checked="" type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input checked="" type="checkbox"/> 6	<input type="checkbox"/> 9	<input type="checkbox"/> 10
268	<input checked="" type="checkbox"/> 1	<input checked="" type="checkbox"/> 2	<input type="checkbox"/> 3	<input checked="" type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 9	<input type="checkbox"/> 10
4518	<input checked="" type="checkbox"/> 1	<input checked="" type="checkbox"/> 2	<input checked="" type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input checked="" type="checkbox"/> 6	<input checked="" type="checkbox"/> 9	<input type="checkbox"/> 10
93	<input checked="" type="checkbox"/> 1	<input type="checkbox"/> 2	<input checked="" type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 9	<input type="checkbox"/> 10
144	<input checked="" type="checkbox"/> 1	<input checked="" type="checkbox"/> 2	<input checked="" type="checkbox"/> 3	<input checked="" type="checkbox"/> 4	<input type="checkbox"/> 5	<input checked="" type="checkbox"/> 6	<input checked="" type="checkbox"/> 9	<input type="checkbox"/> 10
75	<input checked="" type="checkbox"/> 1	<input type="checkbox"/> 2	<input checked="" type="checkbox"/> 3	<input type="checkbox"/> 4	<input checked="" type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 9	<input type="checkbox"/> 10
450	<input checked="" type="checkbox"/> 1	<input checked="" type="checkbox"/> 2	<input checked="" type="checkbox"/> 3	<input type="checkbox"/> 4	<input checked="" type="checkbox"/> 5	<input checked="" type="checkbox"/> 6	<input checked="" type="checkbox"/> 9	<input checked="" type="checkbox"/> 10

GCF and LCM

Find the Greatest Common Factor (GCF) and Least Common Multiple (LCM) of 24 and 32.

$$\text{GCF} = 2 \cdot 3 = 6$$

$$\text{LCM} = 2 \cdot 2 \cdot 3 \cdot 3 = 36$$



		Greatest Common Factor	Least Common Multiple
1) 60 and 66	$\begin{array}{r} 2 \overline{) 60 \ 66} \\ 3 \overline{) 30 \ 33} \\ \hline 10 \ 11 \end{array}$	6	660
2) 44 and 14	$\begin{array}{r} 2 \overline{) 44 \ 14} \\ \hline 22 \ 7 \end{array}$	2	308
3) 7 and 56	$\begin{array}{r} 7 \overline{) 7 \ 56} \\ \hline 1 \ 8 \end{array}$	7	56
4) 20 and 22	$\begin{array}{r} 2 \overline{) 20 \ 22} \\ \hline 10 \ 11 \end{array}$	2	220
5) 18 and 42	$\begin{array}{r} 6 \overline{) 18 \ 42} \\ \hline 3 \ 7 \end{array}$	6	126
6) 16 and 60	$\begin{array}{r} 4 \overline{) 16 \ 60} \\ \hline 4 \ 15 \end{array}$	4	240
7) 5 and 40	$\begin{array}{r} 5 \overline{) 5 \ 40} \\ \hline 1 \ 8 \end{array}$	5	40
8) 12 and 48	$\begin{array}{r} 12 \overline{) 12 \ 48} \\ \hline 1 \ 4 \end{array}$	12	48

Simplify both expressions and then compare using the symbol $<$, $>$, or $=$.

1) $ -6 > -6$ 6 -6	2) $28 \cdot (-2) \div (4) > (-14) \cdot (-2) \cdot (-1)$
3) $- 10 < 15 - 10 $ -10 5	4) $17 - (-8) = 14 + 11$

Adding/Subtracting Fractions



Simplify.

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

-1

$$2) \frac{4}{5} + \frac{7}{5} = \frac{11}{5}$$

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

$\frac{11}{6}$

$$4) 1\frac{1}{2} + 3\frac{3}{4} = \frac{3}{2} + \frac{15}{4}$$

$$\frac{6}{4} + \frac{15}{4} = \frac{21}{4}$$

or $5\frac{1}{4}$

$$5) \frac{6}{7} + \frac{3}{14} = \frac{12}{14} + \frac{3}{14}$$

$\frac{15}{14}$

$$6) -10\frac{1}{8} + (-4\frac{5}{8}) =$$

$$-14\frac{6}{8} = -14\frac{3}{4}$$

$$7) \frac{9}{12} - \frac{5}{12} = \frac{4}{12}$$

$\frac{1}{3}$

$$8) \frac{7}{6} - \frac{2}{3} = \frac{7}{6} - \frac{4}{6}$$

$$= \frac{3}{6}$$

$\frac{1}{2}$

$$9) \frac{4}{5} - \frac{2}{15} = \frac{12}{15} - \frac{2}{15}$$

$$\frac{10}{15} = \frac{2}{3}$$

$$10) \frac{7}{3} - \frac{8}{5} =$$

$$\frac{35}{15} - \frac{24}{15} = \frac{11}{15}$$

$$11) 2\frac{7}{12} - 9\frac{2}{3} =$$

$$\frac{31}{12} - \frac{29}{3} = \frac{31}{12} - \frac{116}{12}$$

$-\frac{85}{12}$

$$12) -\frac{5}{11} + 3 =$$

$$-\frac{5}{11} + \frac{33}{11} = \frac{28}{11}$$

$$13) \frac{4}{5} + \frac{7}{5} + \frac{4}{5} = \frac{15}{5}$$

3

$$14) 9\frac{1}{3} - \frac{2}{5} + 1 =$$

$$\frac{28}{3} - \frac{2}{5} + 1$$

$$\frac{140}{15} - \frac{6}{15} + \frac{15}{15} = \frac{149}{15}$$

$$15) \frac{3}{10} + \frac{4}{5} - (-\frac{1}{10}) =$$

$$\frac{3}{10} + \frac{8}{10} + \frac{1}{10} = \frac{12}{10}$$

$\frac{6}{5}$

$$16) \frac{1}{7} - 3\frac{2}{7} + \frac{1}{2} =$$

$$\frac{2}{14} - \frac{46}{14} + \frac{7}{14} = \frac{-37}{14}$$

$$17) \frac{1}{2} - 3\frac{1}{2} + \frac{4}{5} =$$

$$\frac{5}{10} - \frac{35}{10} + \frac{8}{10} = \frac{-22}{10}$$

$-\frac{11}{5}$

$$18) \frac{2}{13} - \frac{3}{13} + \frac{1}{2} =$$

$$-\frac{1}{13} + \frac{1}{2} =$$

$$-\frac{2}{26} + \frac{13}{26} = \frac{11}{26}$$

Multiplying/Dividing Fractions



Simplify.

$$1) -\frac{5}{4} \cdot \frac{1}{3} = \left(\frac{-5}{12}\right)$$

$$2) \frac{\cancel{8}^4}{\cancel{7}_1} \cdot \frac{\cancel{7}_1}{\cancel{10}_5} = \left(\frac{4}{5}\right)$$

$$3) \frac{\cancel{4}^1}{9} \cdot \frac{\cancel{7}_1}{\cancel{4}_1} = \left(\frac{7}{9}\right)$$

$$4) \frac{\cancel{2}^1}{3} \cdot \frac{\cancel{5}_2}{\cancel{4}_2} = \left(\frac{5}{6}\right)$$

$$5) -2 \cdot \frac{3}{7} = \left(\frac{-6}{7}\right)$$

$$6) -\frac{\cancel{2}^1}{3} \cdot \left(-\frac{\cancel{10}_5}{\cancel{10}_5}\right) = \left(\frac{1}{15}\right)$$

$$7) -\frac{1}{4} \cdot 9 = \left(\frac{-9}{4}\right)$$

$$8) \frac{\cancel{13}_1}{\cancel{8}_1} \cdot \frac{\cancel{1}_2}{\cancel{6}_3} = \left(\frac{13}{6}\right)$$

$$9) \frac{4}{17} \cdot 5 = \left(\frac{20}{17}\right)$$

$$10) -\frac{8}{11} \cdot \left(-\frac{8}{11}\right) =$$

$$\left(\frac{64}{121}\right)$$

$$11) \frac{\cancel{2}^1}{\cancel{4}_1} \cdot \left(-\frac{\cancel{8}_4}{\cancel{28}_2}\right) = \left(\frac{-1}{2}\right)$$

$$12) \frac{\cancel{2}^1}{\cancel{16}_8} \cdot \frac{\cancel{2}^1}{\cancel{3}_1} = \left(\frac{1}{8}\right)$$

$$13) \frac{-1}{5} \div \frac{7}{4} = -\frac{1}{5} \cdot \frac{4}{7}$$

$$= \left(\frac{-4}{35}\right)$$

$$14) \frac{-1}{2} \div \frac{5}{4} = -\frac{1}{2} \cdot \frac{4}{5} = \left(\frac{-2}{5}\right)$$

$$15) \frac{-3}{10} \div \frac{-10}{7} = \frac{-3}{10} \cdot \frac{-7}{10}$$

$$\left(\frac{21}{100}\right)$$

$$16) \frac{9}{2} \div 2 = \frac{9}{2} \cdot \frac{1}{2}$$

$$\left(\frac{9}{4}\right)$$

$$17) \frac{1}{2} \div \frac{8}{7} = \frac{1}{2} \cdot \frac{7}{8}$$

$$\left(\frac{7}{16}\right)$$

$$18) -2 \div \frac{4}{5} =$$

$$-\cancel{2}_2 \cdot \frac{5}{4} = \left(\frac{-5}{2}\right)$$

$$19) \frac{19}{5} \div \frac{1}{5} =$$

$$\frac{19}{5} \cdot 5 = \left(19\right)$$

$$20) \frac{6}{7} \div (-9) =$$

$$\frac{\cancel{6}_3}{7} \cdot -\frac{1}{\cancel{9}_3} = \left(\frac{-2}{21}\right)$$

$$21) \frac{10}{11} \div (-40) =$$

$$\frac{\cancel{10}_5}{11} \cdot -\frac{1}{\cancel{40}_4} = \left(\frac{-1}{44}\right)$$

$$22) \frac{2}{3} \cdot \frac{6}{5} \div \frac{1}{9} =$$

$$\frac{\cancel{2}_2}{3} \cdot \frac{\cancel{6}_3}{5} \cdot \frac{\cancel{9}_3}{1} = \left(\frac{36}{5}\right)$$

$$23) -\frac{1}{2} \div \frac{7}{4} \cdot (-3) =$$

$$-\frac{1}{\cancel{2}_2} \cdot \frac{\cancel{4}_2}{7} \cdot \frac{-3}{1} = \left(\frac{6}{7}\right)$$

$$24) \frac{-37}{10} \div \frac{1}{10} \times \frac{2}{11} =$$

$$\frac{-\cancel{37}_{10}}{\cancel{10}_1} \cdot \frac{\cancel{10}_1}{1} \cdot \frac{2}{11}$$

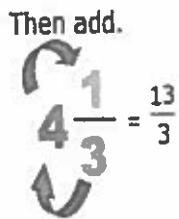
$$= \left(\frac{-74}{11}\right)$$

Mixed Numbers and Improper Fractions; Decimals and Percents



Converting a Mixed number to an Improper fraction

Multiply the whole number by the denominator and add the numerator.



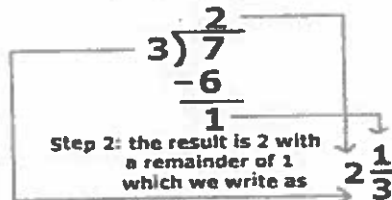
Keep the same denominator.

Multiply.

Converting Improper Fractions to Mixed Numbers

$$\frac{7}{3} = 2\frac{1}{3}$$

Step 1: Set-up a division problem and divide 7 by 3



Convert the improper fraction to a mixed number.

$$1. \frac{17}{6} = \frac{12}{6} + \frac{5}{6} = 2\frac{5}{6}$$

$$2. \frac{28}{9} = 3\frac{1}{9}$$

$$3. \frac{13}{2} = 6\frac{1}{2}$$

$$4. \frac{45}{7} = 6\frac{3}{7}$$

$$5. \frac{65}{8} = 8\frac{1}{8}$$

$$6. \frac{61}{11} = 5\frac{6}{11}$$

Convert the mixed number to an improper fraction.

$$7. 4\frac{1}{5} = \frac{21}{5}$$

$$8. 8\frac{2}{3} = \frac{26}{3}$$

$$9. 9\frac{3}{7} = \frac{66}{7}$$

$$10. 3\frac{5}{11} = \frac{38}{11}$$

$$11. 10\frac{4}{5} = \frac{54}{5}$$

$$12. 7\frac{3}{4} = \frac{31}{4}$$

Convert the decimal to a fraction.

1 Create the top

$$0.15 \rightarrow \frac{15}{100}$$

2 Create the bottom

$$\frac{15}{100} \quad \begin{array}{l} 2 \text{ digits} \\ 2 \text{ zeros} \end{array}$$

3 Reduce the fraction

$$\frac{15 \div 5}{100 \div 5} = \frac{3}{20}$$

$$13. 0.6 = \frac{6}{10} = \frac{3}{5}$$

$$14. 0.15 = \frac{15}{100} = \frac{3}{20}$$

$$15. 2.5 = \frac{25}{10} = \frac{5}{2}$$

$$16. 0.125 = \frac{125}{1000} = \frac{1}{8}$$

$$17. 4.55 = \frac{455}{100} = \frac{91}{20}$$

$$18. 0.08 = \frac{8}{100} = \frac{2}{25}$$

Convert the fraction to a decimal.



19. $\frac{4}{5} = 0.8$

20. $\frac{7}{8} = 0.875$

$$\begin{array}{r} .875 \\ 8 \overline{) 7.000} \\ \underline{-64} \\ 60 \\ \underline{-56} \\ 40 \\ \underline{-40} \\ 0 \end{array}$$

21. $\frac{3}{10} = 0.3$

22. $\frac{4}{9} = 0.\overline{4}$

$$\begin{array}{r} .444 \\ 9 \overline{) 4.000} \\ \underline{-36} \\ 40 \\ \underline{-36} \\ 40 \\ \underline{-36} \\ 4 \end{array}$$

23. $\frac{16}{25} = 0.64$

$$\begin{array}{r} .64 \\ 25 \overline{) 16.00} \\ \underline{-150} \\ 100 \\ \underline{-100} \\ 0 \end{array}$$

24. $\frac{8}{20} = \frac{4}{10} = 0.4$

Convert the percent to a fraction and then to a decimal.

25. 25% $\frac{1}{4} = 0.25$

26. 40% $\frac{2}{5} = 0.4$

27. 72% $\frac{72}{100} = \frac{36}{50} = \frac{18}{25} = 0.72$

28. 102% $\frac{102}{100} = \frac{51}{50} = 1.02$

29. 22% $\frac{22}{100} = \frac{11}{50} = 0.22$

30. 6.5% $\frac{65}{1000} = \frac{13}{200} = 0.065$

Ratios



Write each ratio in simplest terms.

1.

What is the ratio of pentagons to circles?



$$\underline{8 : 5} \text{ or } \underline{8 / 5}$$

2.

What is the ratio of triangles to stars?



$$\underline{12 : 8} \text{ or } \underline{3 / 2}$$

$$\underline{3 : 2}$$

Fill in the missing information.

3. At the malt shop, the ratio of hot dogs sold to hamburgers sold was 2:7. For every 7 hamburgers sold, there were 2 hot dogs sold.

4. In a bag of candy, the ratio of chocolate pieces to sugar pieces was 7:2. For every 7 chocolate pieces, there are 2 sugar pieces.

5. For every 5 dogs at the pet shelter, there are 3 cats. What is the ratio of dogs to cats?

$$\underline{5 : 3} \text{ or } \underline{5 / 3}$$

6. For every 3 regular sodas a burger shop sold, there were 9 diet sodas sold. What is the ratio of regular sodas sold to diet sodas sold?

$$\underline{1 : 3} \text{ or } \underline{1 / 3}$$

Fill in the blank to make an equivalent ratio.

7. 4 : 7 = 8 : 14

8. 30 : 36 = 5 : 6

9. 5 : 4 = 30 : 24

10. 6 : 2 = 54 : 18

Determine if the statements are true or false.



11. Diet sodas = 2 , Regular sodas = 9

- A. The ratio of diet sodas to regular sodas sold is 2:9 *True*
- B. The ratio of diet sodas to regular sodas sold is 9:2 *False*
- C. For every 2 diet sodas sold there are 9 regular sodas sold *True*
- D. The ratio of regular sodas to diet sodas sold is 9:2 *True*

12. Cats = 2 , Dogs = 8

- A. For every 8 cats there are 2 dogs *False*
- B. The ratio of cats to dogs is 2:8 *True*
- C. The ratio of dogs to cats is 8:2 *True*
- D. The ratio of cats to dogs is 8:2 *False*

13. Texts sent = 8 , Calls made = 5

- A. The ratio of texts sent to calls made was 8:5 *True*
- B. The ratio of texts sent to calls made was 5:8 *False*
- C. For every 5 texts sent there were 8 calls made *False*
- D. For every 8 calls made there were 5 texts sent *False*

Order of Operations

Simplify the expression. If your answer is a fraction, write the answer in reduced form.



1. $40 \div 1 + 3 - (3 \times 7) + 7 - 5$

$$40 + 3 - 21 + 7 - 5$$

$$(24)$$

2. $7 \times 7 + 1 + 16 \div 8 - (6 - 7)$

$$49 + 1 + 2 - (-1)$$

$$(53)$$

3. $(15 + 5 + 6 + 9) \times 4 \times 2 + 7$

$$(3 + 6 + 9) \times 4 \times 2 + 7$$

$$18 \cdot 4 \cdot 2 + 7$$

$$144 + 7$$

$$(151)$$

4. $2 + 5^2 + 59$

$$2 + 25 + 59$$

$$27 + 59$$

$$(86)$$

5. $-5 \cdot (-3)^2 + 16$

$$-5(9) + 16$$

$$-45 + 16$$

$$(-29)$$

6. $5^2 + (\frac{1}{4} + \frac{7}{4})^2$

$$25 + 2^2$$

$$25 + 4$$

$$(29)$$

7. $30 - (18 + 6 \div 3) \times (\frac{1}{25})^2$

$$30 - (18 + 2) \cdot (\frac{1}{25})$$

$$30 - 20(\frac{1}{25})$$

$$30 - \frac{4}{5}$$

$$29 \frac{1}{5}$$

$$\frac{146}{5}$$

8. $-7^2 + 32 + \frac{(85-10)}{5}$

$$-49 + 32 + \frac{75}{5}$$

$$-17 + 15$$

$$(-2)$$

9. $[(120 \div 10 + 6) - (-2)] \div (\frac{1}{2})^3$

$$(26 + 2) \div \frac{1}{8}$$

$$28 \cdot 8$$

$$\begin{array}{r} 28 \\ \times 8 \\ \hline 224 \end{array}$$

$$(224)$$

Distributive Property



Simplify each expression.

1. $-6(x+2)$

$$-6x + 12$$

2. $3(2m+5n)$

$$6m + 15n$$

3. $(-9r+4) \cdot 8$

$$-72r + 32$$

4. $\frac{3}{4}(16x-8)$

$$12x - 6$$

5. $-7(-10x-9)$

$$70x + 63$$

6. $-\frac{1}{2}(-4a+3b)$

$$2a - \frac{3}{2}b$$

Combining Like Terms

Simplify each expression.

7. $7x+9x-4x$

$$12x$$

8. $15s - (-2s) + 4t$

$$17s + 4t$$

9. $\frac{4}{3}x + \frac{11}{3}x - 6x$

$$5x - 6x = -x$$

10. $x+2x+4y - (-8y)$

$$3x + 12y$$

11. $7a + \frac{4}{5}b - \frac{1}{2}b - 9a$

$$-2a + \frac{8b}{10} - \frac{5b}{10}$$

$$-2a + \frac{3b}{10}$$

12. $m+2n+m+4m-5n-8$

$$6m - 3n - 8$$

Simplify each expression.

13. $-4(x-8) + 7x$

$$-4x + 32 + 7x$$

$$3x + 32$$

14. $\frac{4}{5}(-10x+15) - 2$

$$-8x + 12 - 2$$

$$-8x + 10$$

15. $11+3(x-9)$

$$11 + 3x - 27$$

$$3x - 16$$

16. $\frac{2}{3}(6x+9) + 4x - 8$

$$4x + 6 + 4x - 8$$

$$8x - 2$$

17. $-2(2n+4) + 7(n+1)$

$$-4n - 8 + 7n + 7$$

$$3n - 1$$

18. $5(a+3b) - 1(2a-6b)$

$$5a + 15b - 2a + 6b$$

$$3a + 9b$$

Evaluating Expressions



Evaluate the expressions when $x = 3$, $y = -2$, $z = \frac{1}{4}$. Write your answer in reduced fraction form, if necessary.

1. $5x + x - 10$

$$15 + 3 - 10$$

$$\boxed{8}$$

2. $-2x - 6x + 18$

$$-6 - 18 + 18$$

$$\boxed{-6}$$

3. $x(7 + y) - x$

$$3(5) - 3$$

$$\boxed{12}$$

4. $y(x + 3) + 8z$

$$-2(6) + 2$$

$$\boxed{-10}$$

5. $z + y - \frac{1}{2}$

$$\frac{1}{4} - 2 - \frac{1}{2}$$

$$\frac{1}{4} - \frac{8}{4} - \frac{2}{4}$$

$$\boxed{-\frac{9}{4}}$$

6. $10 - y + x(3 + y)$

$$10 + 2 + 3(1)$$

$$\boxed{15}$$

7. $\frac{7-x}{y} \cdot \frac{10}{-2}$

$$\boxed{-5}$$

8. $(3 + y) \div z$

$$1 \div \frac{1}{4}$$

$$\boxed{4}$$

9. $x^2 - y^2$

$$9 - 4$$

$$\boxed{5}$$

10. $5x - \frac{x}{y}$

$$15 + \frac{3}{2} = \frac{30}{2} + \frac{3}{2}$$

$$\boxed{\frac{33}{2}}$$

11. $xz \div z$

$$\frac{3}{4} \div \frac{1}{4} = \boxed{3}$$

12. $y^2 + \frac{2}{3} + z$

$$4 + \frac{2}{3} + \frac{1}{4}$$

$$\boxed{\frac{59}{12}}$$

$$\frac{16}{4} + \frac{1}{4} + \frac{2}{3}$$

$$\frac{17}{4} + \frac{2}{3} = \frac{51}{12} + \frac{8}{12}$$



Solving Equations

Find the value of each variable by solving each equation.

1. $v - 10 = -9$
 $+10 \quad +10$

$$\boxed{v = 1}$$

2. $s - 10 = -3$
 $+10 \quad +10$

$$\boxed{s = 7}$$

3. $x + 3 = 4$
 $-3 \quad -3$

$$\boxed{x = 1}$$

4. $\frac{x}{5} = 2$ $x = 10$	5. $-11k = 22$ $k = -2$	6. $\frac{3}{4}m = -9$ $m = -12$
7. $4n - 9 = 1$ $4n = 10$ $n = \frac{5}{4}$	8. $7x + 10 = -10$ $7x = -20$ $x = -\frac{20}{7}$	9. $\frac{z}{2} - 7 = 2$ $\frac{z}{2} = 9$ $z = 18$

Proportions



Solve the proportion for the given variable. Write your answer in reduced fraction form.

1. $\frac{10}{k} = \frac{8}{4}$ $8k = 40$ $k = 5$	2. $\frac{m}{5} = \frac{12}{20}$ $20m = 60$ $m = 3$	3. $\frac{2}{c} = \frac{4}{9}$ $4c = 18$ $c = \frac{9}{2}$
4. $\frac{6}{a} = \frac{3}{-8}$ $3a = -48$ $a = -16$	5. $\frac{12}{5} = \frac{4c}{10}$ $20c = 120$ $c = 6$	6. $\frac{6x}{5} = \frac{2}{3}$ $18x = 10$ $x = \frac{5}{9}$

Percent Problems

Solve each problem.

1. What is 10% of 90? 9	2. What is 20% of 65? 13	3. What percent of 70 is 35? 50%
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4. 150 is 40% of what number? $\frac{150}{\frac{40}{100}} = 150 \cdot \frac{5}{2} = 75 \cdot 5$ <u>375</u>	5. What percent of 48 is 12? <u>25%</u>	6. 200% of 85 is what number? <u>170</u>
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Translating Algebraic Models



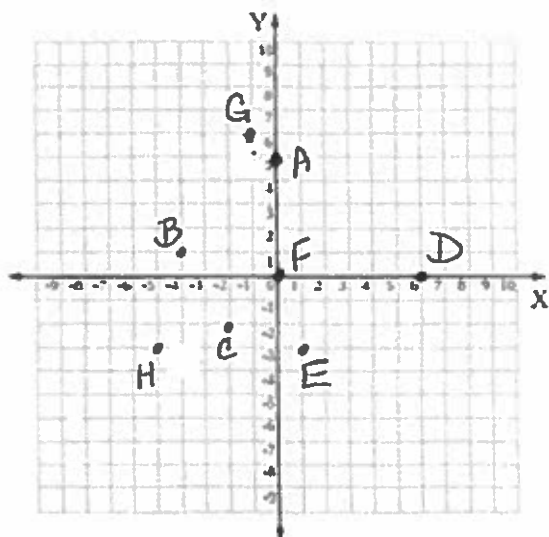
Translate the verbal model into an algebraic expression.

1. The product of five and a number z <u>$5z$</u>	2. A number p less than two <u>$2 - p$</u>	3. The difference of a number k and six <u>$k - 6$</u>
4. The sum of a number x and eleven <u>$x + 11$</u>	5. The quotient of a number y and four <u>$\frac{y}{4}$</u>	6. The product of 7 and the sum of the number q and 10 <u>$7(q + 10)$</u>
7. The product of 7 and the difference of a number x and 1 <u>$7(x - 1)$</u>	8. Double the sum of a number w and 3 <u>$2(w + 3)$</u>	9. One-fourth of a number t increased by 5 <u>$\frac{t}{4} + 5$</u>

Coordinates on a Coordinate Plane

Graph and label by letter each of the coordinates on the coordinate plane.

A (0, 5)	B (-4, 1)	C (-2, -2)	D (6, 0)
E (1, -3)	F (0, 0)	G (-1, 6)	H (-5, -3)



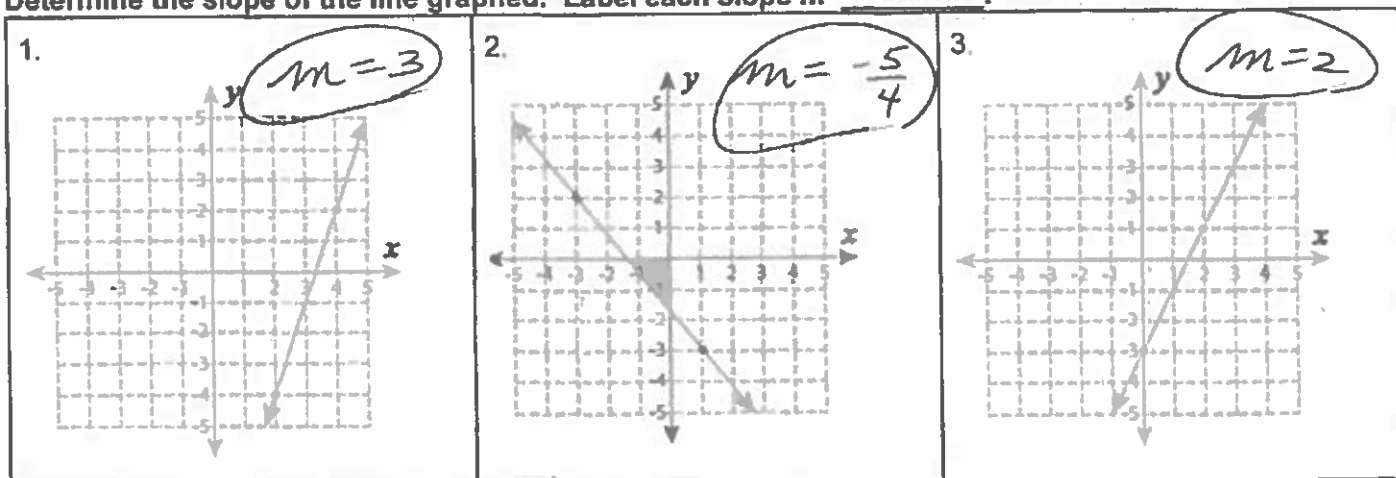
- Which point(s) are graphed on the origin? F
- Which point(s) are graphed on the x-axis? D, F
- Which point(s) are graphed on the y-axis? A, F
- Which point(s) are graphed in quadrant I? none
- Which point(s) are graphed in quadrant II? B, G
- Which point(s) are graphed in quadrant III? C, H
- Which point(s) are graphed in quadrant IV? E

Slope



$$m = \frac{\text{Change in } y}{\text{Change in } x} = \frac{\text{Rise}}{\text{Run}} = \frac{y_2 - y_1}{x_2 - x_1}$$

Determine the slope of the line graphed. Label each slope $m =$



Determine the slope of the line from two points. Label each slope $m =$

<p>4. (9, 5) and (1, 2)</p> <p>$m = \frac{-3}{-8}$ $m = \frac{3}{8}$</p>	<p>5. (7, 10) and (6, 8)</p> <p>$m = \frac{-2}{-1}$ $m = 2$</p>	<p>6. (11, 3) and (8, 0)</p> <p>$m = \frac{-3}{-3}$ $m = 1$</p>
<p>7. (-5, 1) and (4, 2)</p> <p>$m = \frac{1}{9}$</p>	<p>8. (-6, -6) and (5, -6)</p> <p>$m = \frac{0}{11}$ $m = 0$</p>	<p>9. (-13, -7) and (-13, -4)</p> <p>$m = \frac{3}{0}$</p> <p>m is undefined</p>

Application.

10. A climber is on a hike. After 2 hours, he is at an altitude of 400 feet. After 6 hours, he is at an altitude of 700 feet. What is the average rate of change?

a. Write two ordered pairs to model the application.

$$(2, 400) \quad (6, 700)$$

b. Use the slope formula to determine the rate of change.

$$m = \frac{300}{3} \quad m = 100 \text{ ft/hr}$$

11. Michael started a savings account with \$300. After 4 weeks, he had \$350 dollars, and after 8 weeks, he had \$400. What is the rate of change of money in his savings account per week?

a. Write two ordered pairs to model the application.

$$(4, 350) \quad (8, 400)$$

b. Use the slope formula to determine the rate of change.

$$m = \frac{50}{4} \quad m = 12.50/\text{wk}$$

Scientific Notation.

Write the given number in scientific notation.

1. 0.000006 6×10^{-6}	2. 5,400,000 5.4×10^6	3. 0.0000002 2.0×10^{-7}
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Write the given number in decimal form.

4. 2.66×10^4 26,600	5. 7.5×10^{-5} 0.000075	6. 4×10^0 4
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7. True or false. The number 804×10^2 is correctly written in scientific notation. *False*
8. True or false. The number 2.66×10^4 is correctly written in scientific notation. *True*
9. Mr. Griffin's class is studying the solar system. The circumference of the Earth at the equator is about 24,900 miles. Express this number in scientific notation.

$$2.49 \times 10^4$$

10. In 2013 the Los Angeles Dodgers opening day payroll was about $\$2.16 \times 10^8$ and the Houston Astros opening day payroll was about $\$2.4 \times 10^7$. How much higher was the Dodgers' payroll?

$$\begin{array}{r} 216000000 \\ - 24000000 \\ \hline 192,000,000 \end{array}$$

$$\begin{array}{l} \$192 \text{ million} \\ \text{or} \\ \$1.92 \times 10^8 \end{array}$$

11. A TV show had 3.5×10^6 viewers for their first episode and 8.5×10^6 viewers for their second episode. How many viewers did they have overall?

$$12 \times 10^6 \text{ or } 12,000,000 \text{ viewers}$$

$$\text{or}$$

$$1.2 \times 10^7 \text{ viewers}$$

12. The speed of an airplane was 2,000 mph for 7 hours. How far did the airplane travel? Write your answer in scientific notation.

$$(2000)(7) = 14,000 \text{ mi } \quad 1.4 \times 10^4 \text{ mi}$$