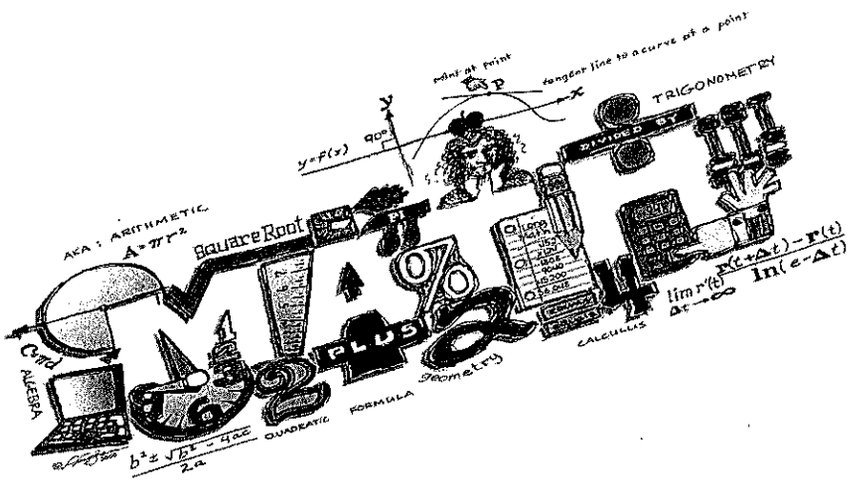
8th Grade

All assignments will be GRADED!
Please be sure to submit your completed packet NO LATER THAN 5 days upon returning to school.



8th Grade Suggested Timeline

Technology-Free Alternative

Days	Activity Math Essentials Workbook Read all the items in the margins and complete the activities as directed.
1	Exponents pg 869-878 3days
2	
3	
4	Scientific Notation pg 893-898 2days
5	Notation Worksheet
6	Coordinate Plane Activity 1day
7	Plot Coordinates Worksheet 2days
8	Plot Coordinate Worksheet
9	Translating Geometric Figures pg 383-402
10	7days of Work (Carnegie)
11	Translating Geometric Figures
12	Translating Geometric Figures
13	Translating Geometric Figures
14	Translating Geometric Figures
15	Translating Geometric Figures
16	Translating Geometric Figures
17	Reflections pg 436-438
18	Reflections pg 3-10 Equations
19	Equations pg 315-324
20	Solving Equations pg 3-12

Name Williams & Carter

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NAME _____ DATE _____

Exponentially Speaking
Powers and Exponents

Vocabulary

Write the term that best completes each statement.

1. The _____ of a power is the number of times that the factor is repeatedly multiplied.
2. An expression used to represent a factor as repeated multiplication is called a _____.
3. The _____ of a power is the repeated factor in a power.

Problem Set

State the base and the exponent of each power.

1. 9^4

   The base is 9 and the exponent is 4.

2. 10^2
3. 18^6
4. 2^7
5. -11^9
6. -48^3
7. $(-15)^2$
8. $(-14)^6$
9. 7^3x^3
10. $(13x)^2$
11. $(-22y)^4$
12. $-(71y)^5$

Write each expression using exponents.

73. $(-x)(-x)(-x)(-y)(-y)$

The power is $(-x)^3(-y)^2$.

74. $(-a)(-a)(-a)(-a)(c)(c)(c)(c)(c)$

75. $(-y) \cdot (-y) \cdot z \cdot z \cdot z \cdot z \cdot z$

76. $(-m) \cdot (-m) \cdot (-m) \cdot (-m) \cdot (-m) \cdot n \cdot n \cdot n$

77. $(-a)(-a)(-a)(b)(b)(b)$

78. $-6 \cdot 6 \cdot 6 \cdot b \cdot b \cdot h \cdot h \cdot h$

79. $-4 \cdot 4 \cdot 4 \cdot 4 \cdot 4 \cdot m \cdot m \cdot m \cdot n \cdot n$

80. $-3 \cdot 3 \cdot 3 \cdot 3 \cdot 3 \cdot y \cdot y \cdot y \cdot y \cdot z \cdot z \cdot z$

81. $-5 \cdot 5 \cdot a \cdot a \cdot a \cdot a \cdot a \cdot b \cdot b$

82. $-2 \cdot 2 \cdot 2 \cdot 2 \cdot x \cdot x \cdot x \cdot y \cdot y \cdot y \cdot y$

Write each expression using exponents.

83. $3x \cdot 3x \cdot 3x \cdot y \cdot y \cdot y \cdot z \cdot z \cdot z \cdot z \cdot z$

The power is $(3x)^3y^3z^5$.

84. $4a \cdot 4a \cdot 2b \cdot 2b \cdot 2b \cdot c \cdot c \cdot c \cdot c$

85. $5mn \cdot 5mn \cdot 5mn \cdot 5mn \cdot l \cdot l \cdot l$

86. $(-2x)(-2x)(-2x)(y)(y)(z)(z)(z)$

87. $a \cdot a \cdot a \cdot (-4b) \cdot (-4b) \cdot c \cdot c$

88. $-6m \cdot 6m \cdot 6m \cdot 6m \cdot n \cdot n \cdot n$

89. $-3x \cdot 3x \cdot 3x \cdot (-2y) \cdot (-2y) \cdot z \cdot z \cdot z \cdot z$

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NAME _____ DATE _____

Digital Storage
Multiplying and Dividing Powers

Problem Set

Write each expression in expanded form.

1. $5^2 \cdot 5^4$

$5 \cdot 5 \cdot 5 \cdot 5 \cdot 5 \cdot 5$

2. $3^4 \cdot 3^5$

3. $7^3 \cdot 7^5$

4. $2^2 \cdot 2^3$

Simplify each expression. Show your work.

5. $(9)^2(9)^4$

$(9)^2(9)^4 = 9^{2+4}$

$= 9^6$

6. $(-4)^3(-4)^7$

7. $(-2)^2(-2)^5$

8. $(-8)^4(-8)^5$

Write each expression in expanded form.

9. $x^2 \cdot x^3$

$x \cdot x \cdot x \cdot x \cdot x$

10. $y \cdot y^2$

11. $m^5 \cdot m^2$

12. $n^4 \cdot n^5$

Simplify each expression. Show your work.

13. $(-a)^3(-a)^4$

$(-a)^3(-a)^4 = (-a)^{3+4}$

$= (-a)^7$

14. $(-b)^2(-b)^4$

15. $(-c)(-c)^3$

16. $(-z)^6(-z)^2$

Simplify each expression. Show your work.

17. $x^2y^2x^3y^5$

$x^2y^2x^3y^5 = (x^2x^3)(y^2y^5)$

$= x^{2+3}y^{2+5}$

$= x^5y^7$

18. $a^3b^2ab^4$

19. $7y^3z^4 \cdot 2yz^3$

20. $3mn^3 \cdot 8m^6n^7$

13

NAME _____ DATE _____

21. $5y^3 \cdot 3yz^3 \cdot z^2$

22. $9b^2 \cdot 2a^5 \cdot a^2b^6$

23. $(-y)^2 \cdot (-y)^4 \cdot z \cdot z$

24. $(-m)^2 \cdot n^3 \cdot (-m)^4 \cdot n^2$

25. $3x^3 \cdot 2x^2 \cdot y^3 \cdot y$

26. $(-b) \cdot 4a \cdot (-b)^5 \cdot 2a^3$

Write each number in scientific notation. Show your work.

17. 0.000067

$0.000067 = (6.7)(0.00001)$

$0.00001 = \frac{1}{100{,}000}$

$= \frac{1}{10^5}$

$= 10^{-5}$

The number written in scientific notation is 6.7×10^{-5}.

18. 0.000831

19. 0.00000000253

20. 0.00000092

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Name : _____ Score : _____

Scientific Notation

Positive: ES1

Example:

Write 3, 200 in scientific notation.

We should move the decimal point 3 places to the left. So, the exponent will be 3.

$3,200 = \mathbf{3.2 \times 10^3}$

Express each number in scientific notation.

1) 625 = _____

2) 4, 216 = _____

3) 49, 603 = _____

4) 25 = _____

5) 18, 569 = _____

6) 836 = _____

7) 9, 364 = _____

8) 34, 121 = _____

9) 22 = _____

10) 912 = _____

11) 7, 350 = _____

12) 4, 874 = _____

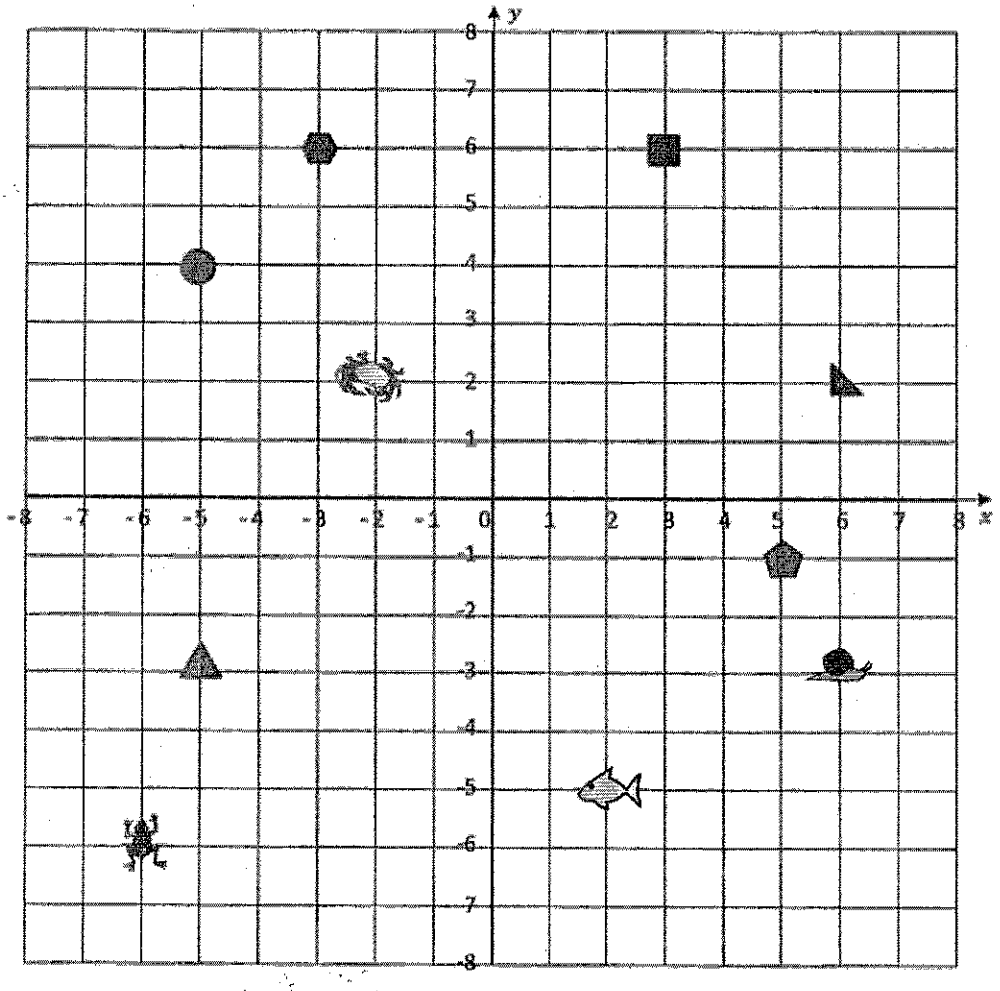
13) 62, 503 = _____

14) 13, 058 = _____

Name Date

FIND THE COORDINATES 1

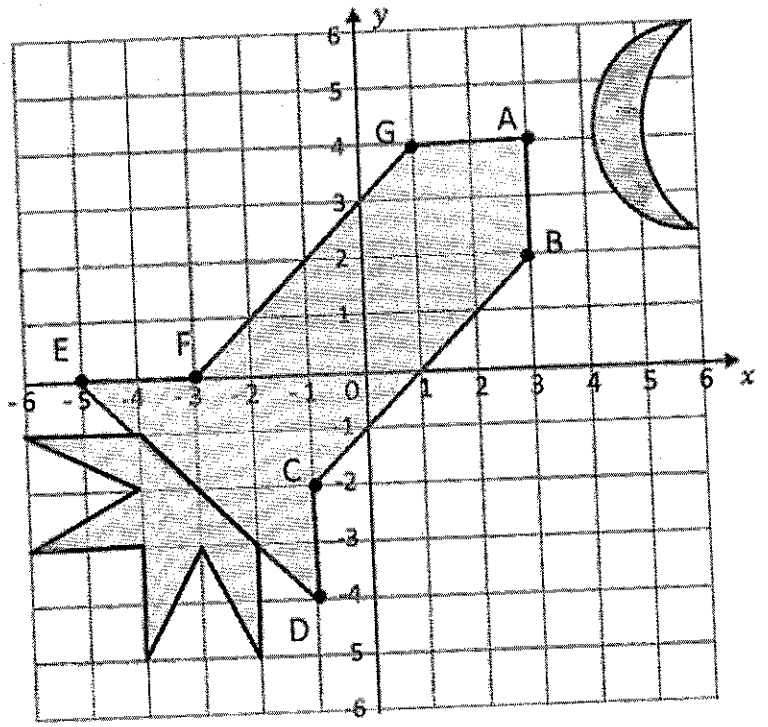
Use the coordinate grid to work out the coordinates below.



1) Circle (-5, 4)
2) Square (___, ___)
3) Hexagon (___, ___)
4) Frog (___, ___)
5) Fish (___, ___)
6) Pentagon (___, ___)
7) Right triangle (___, ___)
8) Equilateral triangle (___, ___)
9) Crab (___, ___)
10) Snail (___, ___)

Name Date

FIND AND PLOT THE COORDINATES 1



1) Write down the coordinates of this rocket.

A (___ , ___)

B (___ , ___)

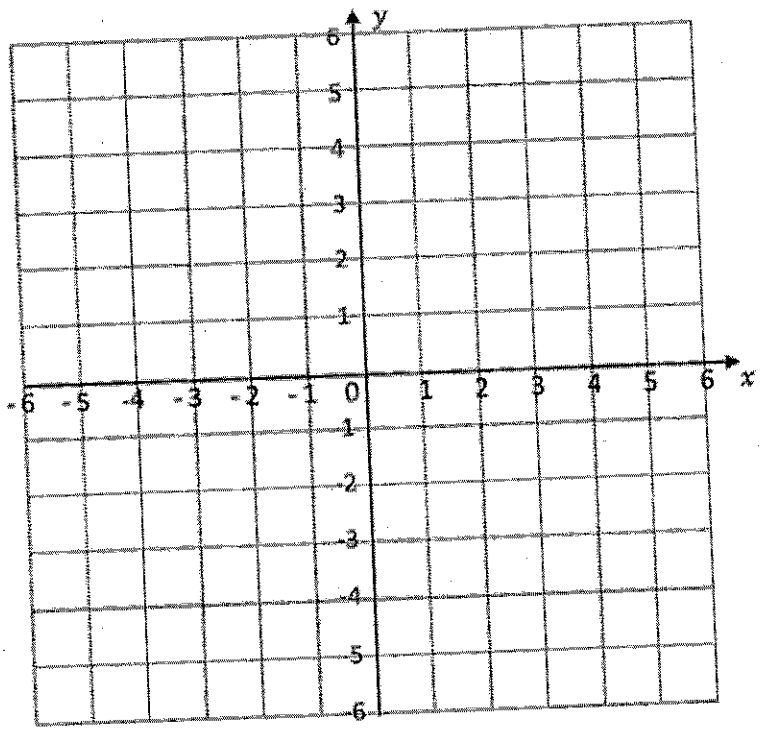
C (___ , ___)

D (___ , ___)

E (___ , ___)

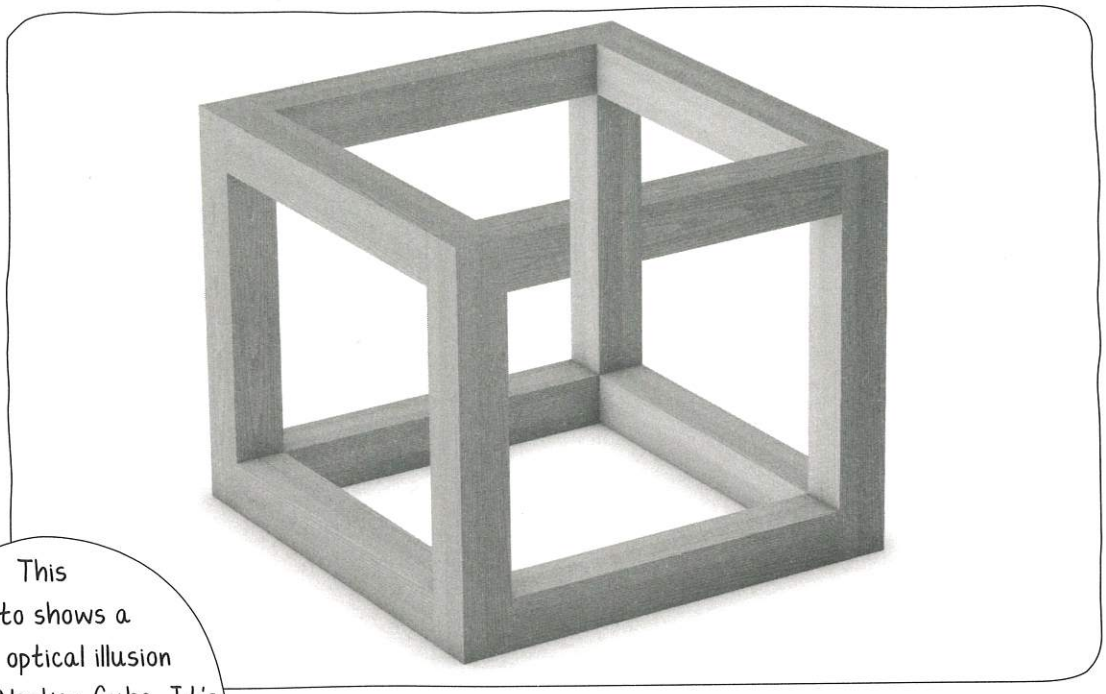
F (___ , ___)

G (___ , ___)



2) Draw your own rocket in the grid below and write down the coordinates.

7 TRANSLATIONS, REFLECTIONS, AND ROTATIONS



This photo shows a classic optical illusion called the Necker Cube. It's an example of an impossible object. Optical illusions are often helpful to scientists who study how we see the world around us. Can you see why this cube is "impossible"?

7.1 SLIDING RIGHT, LEFT, UP, DOWN, AND DIAGONALLY

Translations Using Geometric Figures

Learning Goals

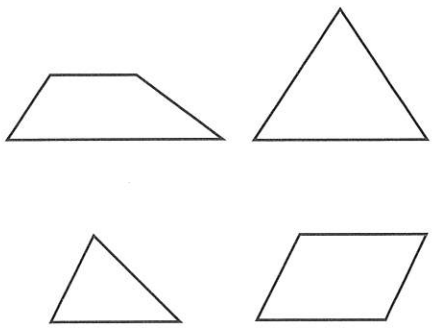
In this lesson, you will:

- Translate geometric figures horizontally.
- Translate geometric figures vertically.
- Understand that a two-dimensional figure is congruent to another if the second can be obtained from the first by a sequence of translations.

Key Terms

- transformation
- translation
- image
- pre-image

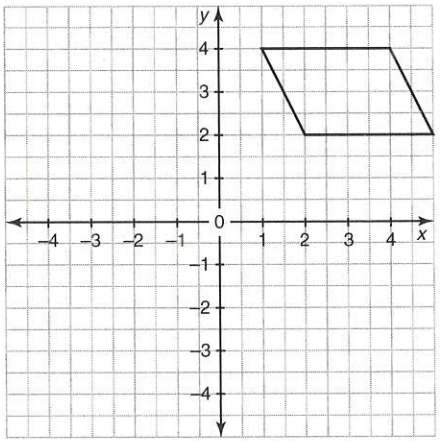
To begin this chapter, cut out the figures shown on this page. You will have a trapezoid, two triangles, and a parallelogram. You will be using these figures in several lessons. What do you know about these shapes?



Problem 1 Sliding to the Right, Left, Up, and Down

Let's explore different ways to move, or transform, figures across a coordinate plane. A **transformation** is the mapping, or movement, of all the points of a figure in a plane according to a common operation.

1. Look at the parallelogram shown on the coordinate plane.



a. Place your parallelogram on the original figure on the coordinate plane shown and slide it 5 units to the left. Trace your parallelogram on the coordinate plane, and label it Figure 1.

b. Place your parallelogram on the original figure on the coordinate plane shown and slide it 5 units down. Trace your parallelogram on the coordinate plane, and label it Figure 2.

c. Place your parallelogram on Figure 1 on the coordinate plane and slide it 5 units down. Trace your parallelogram on the coordinate plane, and label it Figure 3.

d. Describe how all of the parallelograms you traced on the coordinate plane compare with each other.

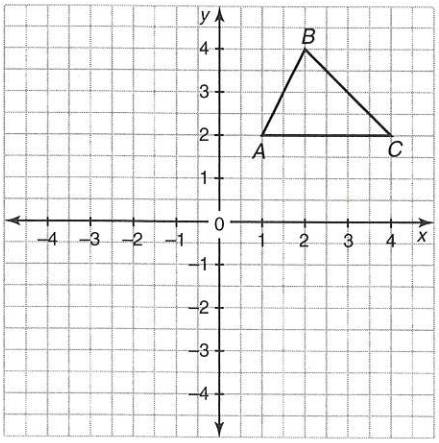
2. Recall that two geometric figures are considered congruent when they are the same size and the same shape.

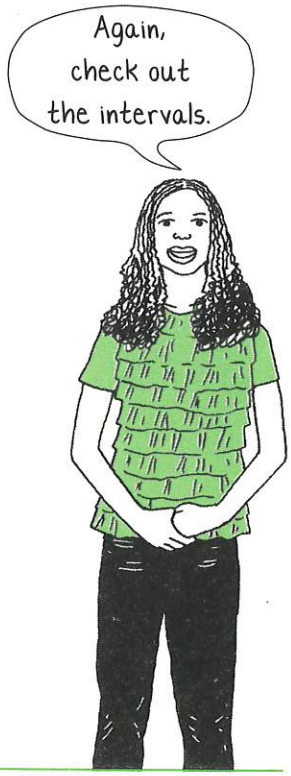
   a. Did sliding the parallelogram either up or down on the coordinate plane change the size or shape of the parallelogram?

   b. Are Figure 1, Figure 2, and Figure 3 all congruent to the original parallelogram shown on the coordinate plane? Explain your reasoning.

When you were sliding the parallelogram to the different places, you were performing *translations* of the parallelogram. A **translation** is a transformation that "slides" each point of a figure the same distance and direction. Sliding a figure left or right is a horizontal translation, and sliding it up or down is a vertical translation. The new figure created from the translation is called the **image**. The original figure is called the **pre-image**.

3. Look at the triangle shown on the coordinate plane.





   a. List the ordered pairs for the vertices of $\triangle ABC$.

b. Place your triangle on $\triangle ABC$, and translate it -6 units vertically. Trace the new triangle, and label the vertices A', B', and C' in $\triangle A'B'C'$ so the vertices correspond to the vertices A, B, and C in $\triangle ABC$.

c. List the ordered pairs for the vertices of $\triangle A'B'C'$.

d. Place your triangle on $\triangle ABC$, and translate it -6 units horizontally. Trace the new triangle, and label the vertices A'', B'', and C'' in $\triangle A''B''C''$ so the vertices correspond to the vertices A, B, and C in $\triangle ABC$.

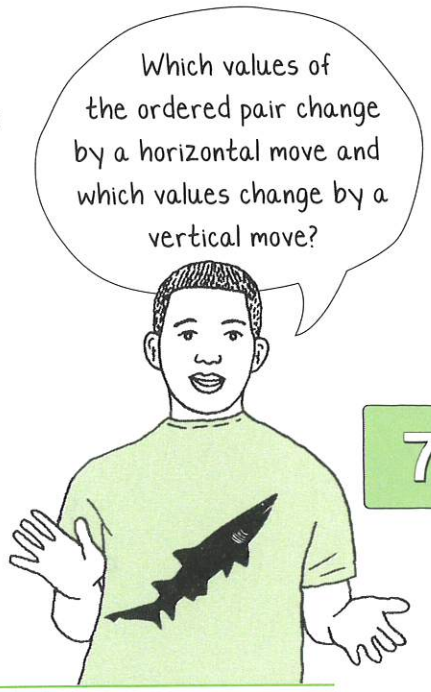
e. List the ordered pairs for the vertices of $\triangle A''B''C''$.

f. Compare the ordered pairs in $\triangle ABC$ and $\triangle A'B'C'$. How are the values in the ordered pairs affected by the translation?

g. Compare the ordered pairs in $\triangle ABC$ and $\triangle A''B''C''$. How are the values in the ordered pairs affected by the translation?

h. If you were to translate $\triangle ABC$ 10 units vertically to form $\triangle DEF$, what would be the ordered pairs of the corresponding vertices?

i. If you were to translate $\triangle ABC$ 10 units horizontally to form $\triangle GHJ$, what would be the ordered pairs of the corresponding vertices?

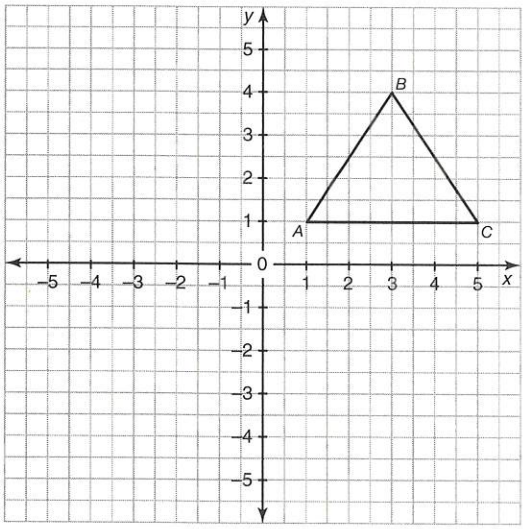


4. Recall that two geometric figures are considered congruent when they are the same size and the same shape.

   a. Did sliding the triangle either up or down on the coordinate plane change the size or shape of the triangle?

   b. Are both of the triangles you drew congruent to the triangle shown on the coordinate plane? Explain your reasoning.

5. Look at the triangle shown on the coordinate plane.



   a. List the ordered pairs for the vertices of $\triangle ABC$.

   b. Place your triangle on $\triangle ABC$, and translate it -5 units vertically. Trace the new triangle, and label the vertices A', B', and C' in $\triangle A'B'C'$ so the vertices correspond to the vertices A, B, and C in $\triangle ABC$.

   c. List the ordered pairs for the vertices of $\triangle A'B'C'$.

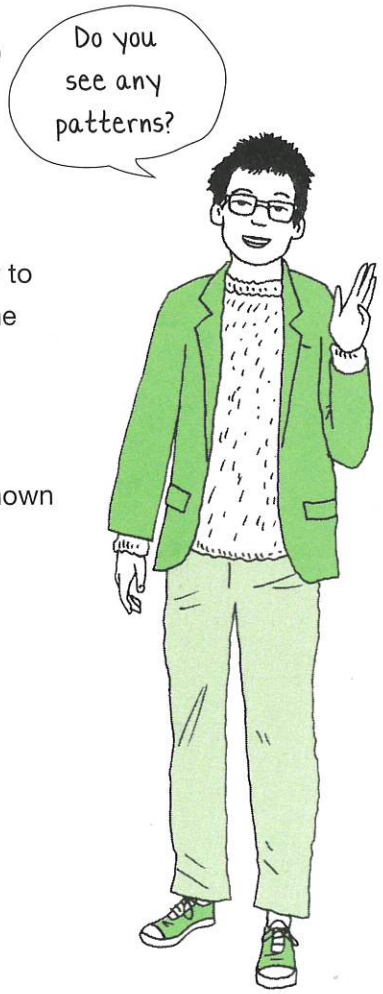
d. Place your triangle on $\triangle ABC$, and translate it –5 units horizontally. Trace the new triangle, and label the vertices A'', B'', and C'' in $\triangle A''B''C''$ so the vertices correspond to the vertices A, B, and C in $\triangle ABC$.

e. List the ordered pairs for the vertices of $\triangle A''B''C''$.

f. Compare the ordered pairs in $\triangle ABC$ and $\triangle A'B'C'$. How are the values in the ordered pairs affected by the translation?

g. Compare the ordered pairs in $\triangle ABC$ and $\triangle A''B''C''$. How are the values in the ordered pairs affected by the translation?

h. If you were to translate $\triangle ABC$ 10 units vertically to form $\triangle DEF$, what would be the ordered pairs of the corresponding vertices?

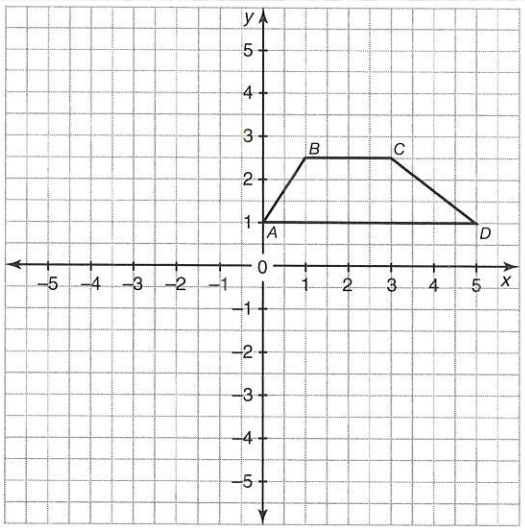


i. If you were to translate $\triangle ABC$ 10 units horizontally to form $\triangle GHJ$, what would be the ordered pairs of the corresponding vertices?

6. Are both triangles congruent to the original triangle shown on the coordinate plane? Explain your reasoning.

Problem 2 Translating a Trapezoid

1. Look at the trapezoid shown on the coordinate plane.



a. List the ordered pairs for the vertices of trapezoid *ABCD*.

b. Place your trapezoid on trapezoid *ABCD*, and translate it –5 units vertically. Trace the new trapezoid, and label the vertices *A′*, *B′*, *C′*, and *D′* in trapezoid *A′B′C′D′* so the vertices correspond to the vertices *A*, *B*, *C*, and *D* in trapezoid *ABCD*.

c. List the ordered pairs for the vertices of trapezoid *A′B′C′D′*.

d. Place your trapezoid on trapezoid *ABCD*, and translate it –5 units horizontally. Trace the new trapezoid, and label the vertices *A″*, *B″*, *C″*, and *D″* in trapezoid *A″B″C″D″* so the vertices correspond to the vertices *A*, *B*, *C*, and *D* in trapezoid *ABCD*.

e. List the ordered pairs for the vertices of trapezoid *A″B″C″D″*.

f. Compare the ordered pairs in trapezoid *ABCD* and trapezoid *A′B′C′D′*. How are the values in the ordered pairs affected by the translation?

g. Compare the ordered pairs in trapezoid *ABCD* and trapezoid *A″B″C″D″*. How are the values in the ordered pairs affected by the translation?

h. If you were to translate trapezoid *ABCD* 10 units vertically to form trapezoid *DEFG*, what would be the ordered pairs of the corresponding vertices?

i. If you were to translate trapezoid *ABCD* 10 units horizontally to form trapezoid *HJKM*, what would be the ordered pairs of the corresponding vertices?

2. Recall that two geometric figures are considered congruent when they are the same size and the same shape.

a. Did sliding the trapezoid either up or down on the coordinate plane change the size or shape of the trapezoid?

b. Are both trapezoids congruent to the original trapezoid shown on the coordinate plane? Explain your reasoning.

Talk the Talk

1. Are all images, or new figures that result from a translation, always congruent to the original figure? Explain your reasoning.

2. For any real number c or d, describe how the ordered pair (x, y) of any original figure will change when translated:

   a. horizontally c units. How do you know if the image translated to the left or to the right?

   b. vertically d units. How do you know if the image translated up or down?

Be prepared to share your solutions and methods.

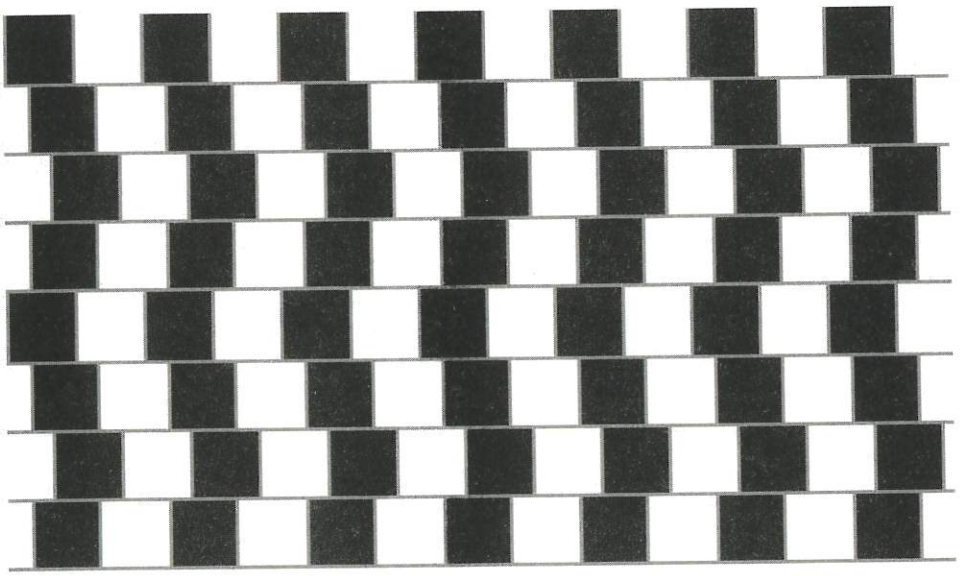
7.2 SLIDING LINES
Translations of Linear Functions

Learning Goals

In this lesson, you will:

- Translate linear functions horizontally and vertically.
- Use multiple representations such as tables, graphs, and equations to represent linear functions and the translations of linear functions.

Look at the lines below each row of black and white squares. Are these lines straight? Grab a ruler or other straightedge to test.



This very famous optical illusion is called the Zöllner illusion, named after its discoverer, Johann Karl Friedrich Zöllner, who first wrote about it in 1860.

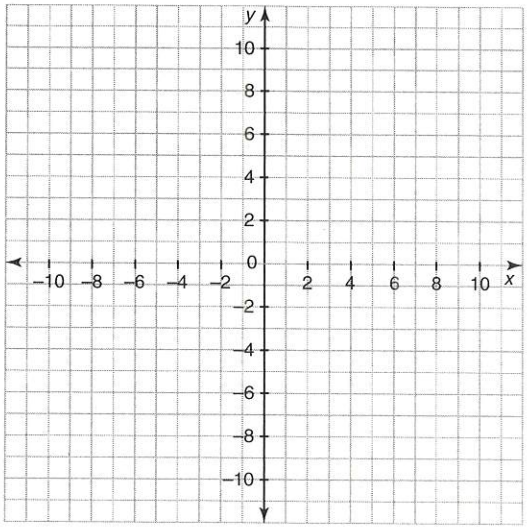
Problem 1 Translating Linear Functions Up or Down

In the previous lesson, geometric figures were translated vertically (up or down) and horizontally (left or right). In this lesson, you will use that knowledge to translate linear functions both vertically and horizontally.

1. Consider the equation $y = x$. Complete the table of values.

x	y
−3	
−2	
−1	
0	
1	
2	
3	

2. Use the table of values and the coordinate plane provided to graph the equation $y = x$.



3. Did you connect the points on the graph of the equation? Why or why not?

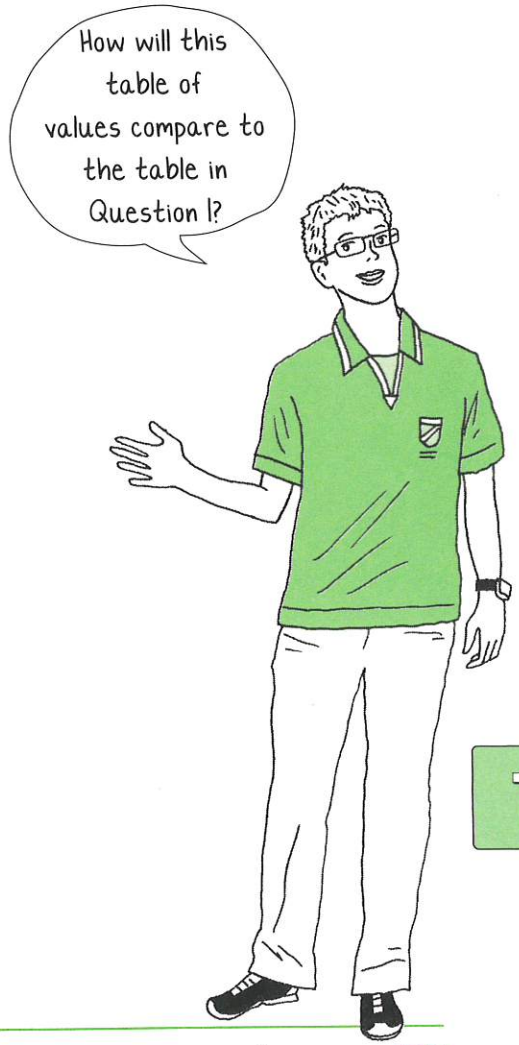
4. In the previous lesson, a geometric figure was translated down 4 units.

   a. How did that affect the value of the x-coordinate of each vertex?

   b. How did that affect the value of the y-coordinate of each vertex?

5. Use your experience of translating a geometric figure to translate the graph of $y = x$ down 4 units. Draw the new line on the coordinate plane in Question 2 and then complete the table of values.

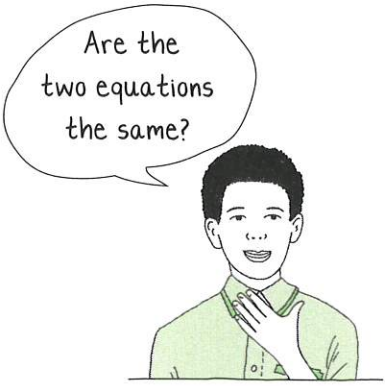
x	y
−3	
−2	
−1	
0	
1	
2	
3	



6. Compare the graph of $y = x$ to the graph of $y = x$ translated down 4 units.

a. What do you notice?

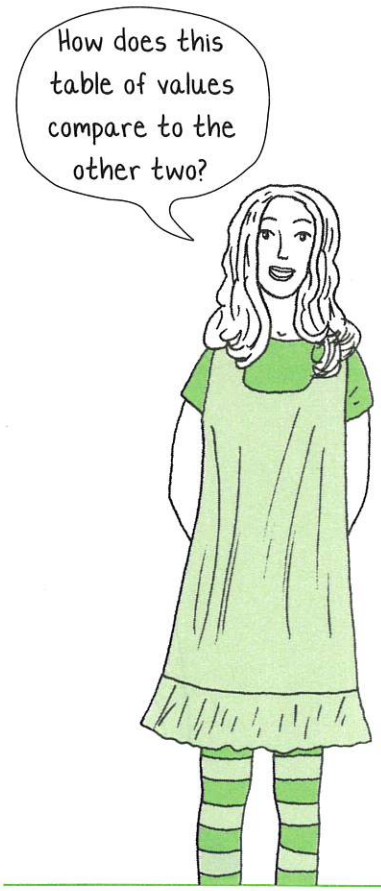
b. Write an equation in the form $y =$ to represent the translation.



c. Write an equation in the form $x =$ to represent the translation.

7. Translate the graph of $y = x$ up 4 units. Draw the new line on the coordinate plane in Question 2 and then complete the table of values.

x	y
−3	
−2	
−1	
0	
1	
2	
3	



8. Compare the graph of $y = x$ to the graph of $y = x$ translated up 4 units.

   a. What do you notice?

   b. Write an equation in the form $y =$ to represent the translation.

   c. Write an equation in the form $x =$ to represent the translation.

9. Label each equation on the coordinate plane in slope-intercept form. What do you notice? What is similar about each line? What is different?

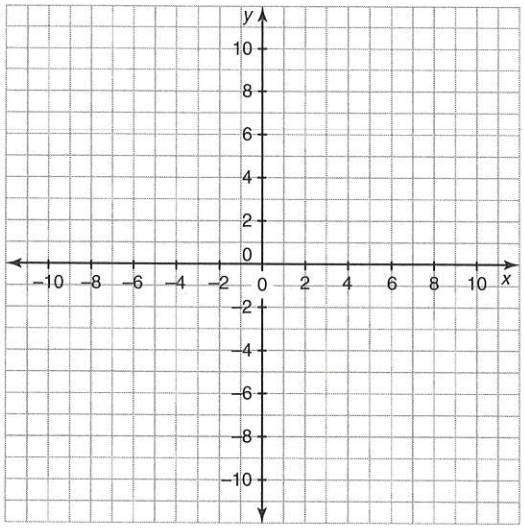
Problem 2 Translating Linear Functions Left or Right

1. In the previous lesson, a geometric figure was translated to the left 4 units.

   a. How did that affect the value of the x-coordinate of each vertex?

   b. How did that affect the value of the y-coordinate of each vertex?

2. Graph the equation $y = x$ on the coordinate plane.



3. Use your experience of translating a geometric figure to translate the graph of $y = x$ to the left 4 units. Draw the new line on the coordinate plane and then complete the table of values.

x	y
	−3
	−2
	−1
	0
	1
	2
	3

4. Compare the graph of $y = x$ to the graph of $y = x$ translated to the left 4 units.

a. What do you notice?

b. Write an equation in the form $y =$ to represent the translation.

c. Write an equation in the form $x =$ to represent the translation.

5. Translate the graph of $y = x$ to the right 4 units. Draw the new line on the coordinate plane in Question 2 and then complete the table of values.

x	y
	−3
	−2
	−1
	0
	1
	2
	3

6. Compare the graph of $y = x$ to the graph of $y = x$ translated to the right 4 units.

a. What do you notice?

b. Write an equation in the form $y =$ to represent the translation.

c. Write an equation in the form $x =$ to represent the translation.

7. Label each equation on the coordinate plane in slope-intercept form. What do you notice? What is similar about each line? What is different?

Problem 3 Making Connections

1. Organize the equations you determined for the graph of each translation performed on the linear equation $y = x$ in the previous problem by completing the last two columns of the table shown.

Original Equation	Translation Performed	Equation of Translation in the Form of $y =$	Equation of Translation in the Form of $x =$
$y = x$	Down 4 Units	$y =$	$x =$
$y = x$	Up 4 Units	$y =$	$x =$
$y = x$	Left 4 Units	$y =$	$x =$
$y = x$	Right 4 Units	$y =$	$x =$

2. Which translations of the linear equation $y = x$ resulted in the same graph?

3. Kieran says that whenever a linear equation written in slope-intercept form shows a plus sign, it is a translation right or up, and when it shows a minus sign it is a translation left or down, because positive always means up and right on the coordinate grid, and negative always means left and down. Is Kieran correct? Justify your answer.

NAME _____ DATE _____

Sliding Right, Left, Up, Down, and Diagonally
Translations Using Geometric Figures

Vocabulary

Define each term in your own words.

1. transformation

2. translation

3. image

Problem Set

Determine the coordinates of the image following each given translation.

1. Triangle *ABC* with coordinates *A*(2, 4), *B*(3, 6), and *C*(5, 1) is translated 4 units horizontally.

   The coordinates of the image are *A'*(6, 4), *B'*(7, 6), and *C'*(9, 1).

2. Parallelogram *DEFG* with coordinates *D*(0, 2), *E*(1, 5), *F*(6, 5), and *G*(5, 2) is translated −7 units horizontally.

3. Trapezoid *HIJK* with coordinates *H*(−1, 3), *I*(−1, −3), *J*(−4, −1), and *K*(−4, 1) is translated 3 units vertically.

4. Square *LMNO* with coordinates *L*(−1, 7), *M*(3, 7), *N*(3, 3), and *O*(−1, 3) is translated −5 units vertically.

5. Triangle *PQR* with coordinates *P*(3, −4), *Q*(6, −1), and *R*(6, −6) is translated −3 units horizontally and 6 units vertically.

6. Triangle *STU* with coordinates *S*(0, 0), *T*(4, 4), and *U*(5, 0) is translated 10 units horizontally and −2 units vertically.

7. Rectangle *WXYZ* with coordinates *W*(−8, −1), *X*(−2, −1), *Y*(−2, −3), and *Z*(−8, −3) is translated 13 units horizontally.

8. Rhombus *ABCD* with coordinates *A*(7, 8), *B*(9, 5), *C*(7, 2), and *D*(5, 5) is translated −9 units vertically.

9. Triangle *DEF* with coordinates *D*(0, 12), *E*(−3, −7), and *F*(−5, 1) is translated −12 units horizontally and −8 units vertically.

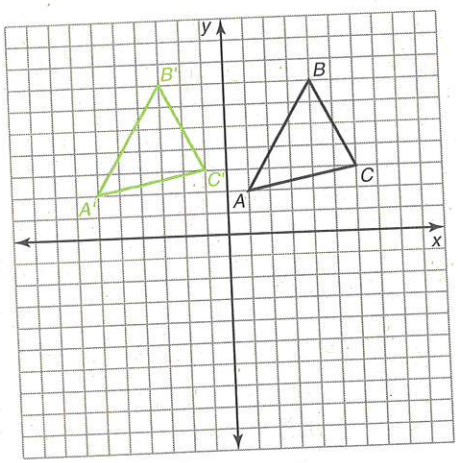
10. Parallelogram *GHIJ* with coordinates *G*(0, 0), *H*(2, 8), *I*(8, 8), and *J*(6, 0) is translated −8 units horizontally and −8 units vertically.

Lesson 7.1 Skills Practice

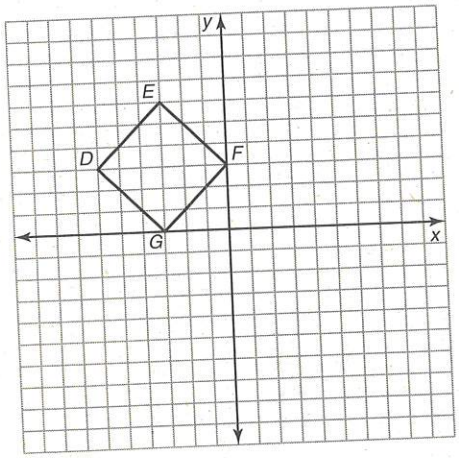
NAME _____ DATE _____

Sketch the translation of each given figure in the coordinate plane.

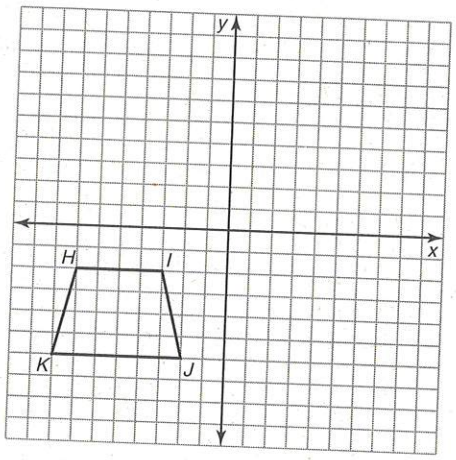
11. Translate the given figure −7 units horizontally.



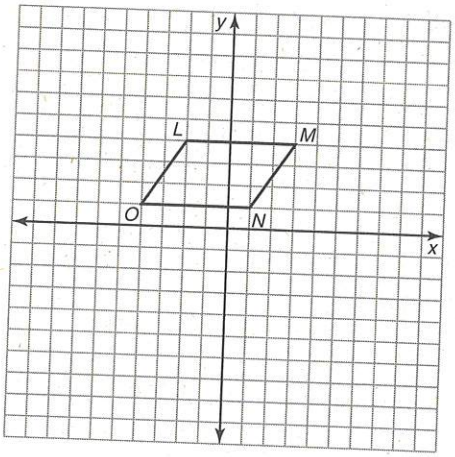
12. Translate the given figure 4 units horizontally.



13. Translate the given figure 8 units vertically.



14. Translate the given figure −6 units vertically.



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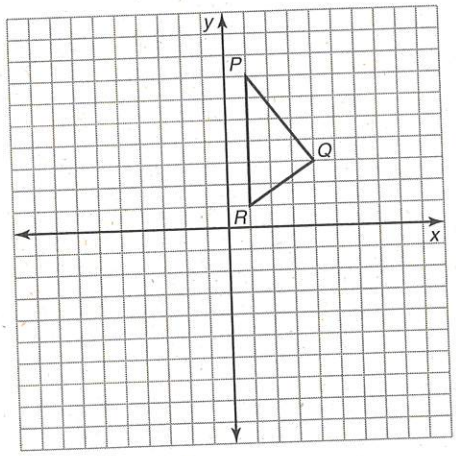
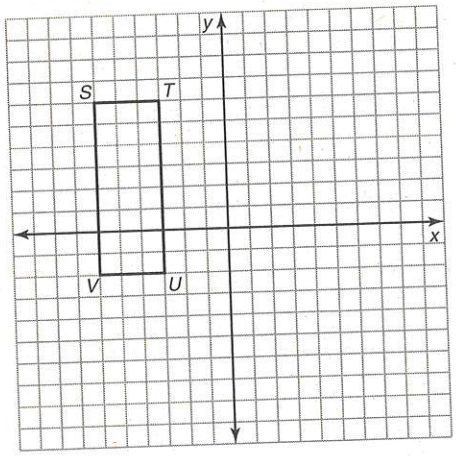
15. Translate the given figure 3 units horizontally and −8 units vertically.



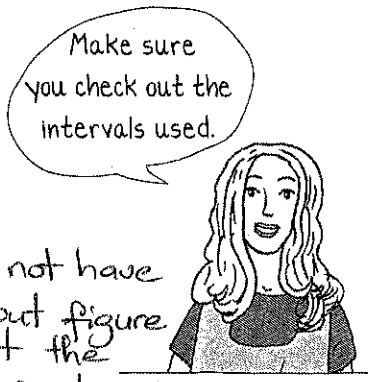
16. Translate the given figure 9 units horizontally and −4 units vertically.



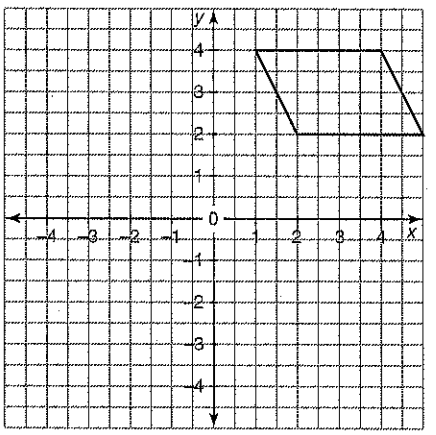
Problem 1 Sliding to the Right, Left, Up, and Down

Let's explore different ways to move, or transform, figures across a coordinate plane. A **transformation** is the mapping, or movement, of all the points of a figure in a plane according to a common operation.

1. Look at the parallelogram shown on the coordinate plane.



You do not have any cut out figure so count the number of places. Take each point and count the number of places



a. Place your parallelogram on the original figure on the coordinate plane shown and slide it 5 units to the left. Trace your parallelogram on the coordinate plane, and label it Figure 1.

b. Place your parallelogram on the original figure on the coordinate plane shown and slide it 5 units down. Trace your parallelogram on the coordinate plane, and label it Figure 2.

c. Place your parallelogram on Figure 1 on the coordinate plane and slide it 5 units down. Trace your parallelogram on the coordinate plane, and label it Figure 3.

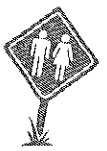
d. Describe how all of the parallelograms you traced on the coordinate plane compare with each other.

2. Recall that two geometric figures are considered congruent when they are the same size and the same shape.

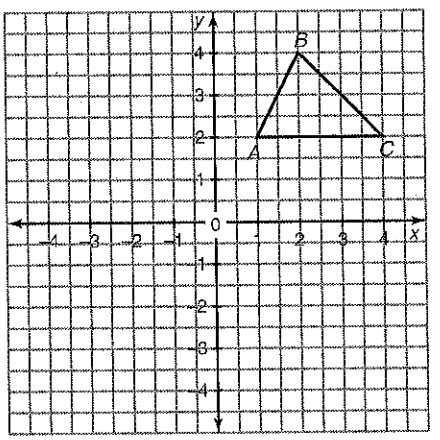
   a. Did sliding the parallelogram either up or down on the coordinate plane change the size or shape of the parallelogram?

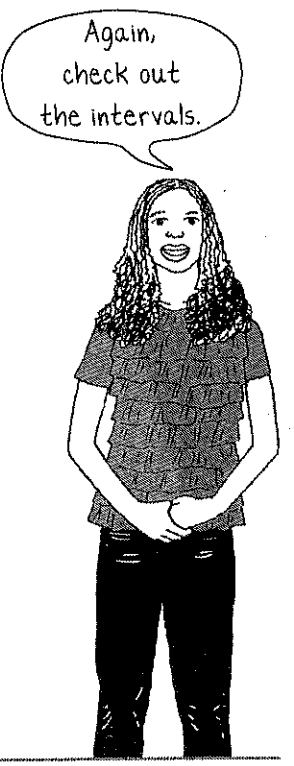
   b. Are Figure 1, Figure 2, and Figure 3 all congruent to the original parallelogram shown on the coordinate plane? Explain your reasoning.

When you were sliding the parallelogram to the different places, you were performing *translations* of the parallelogram. A **translation** is a transformation that "slides" each point of a figure the same distance and direction. Sliding a figure left or right is a horizontal translation, and sliding it up or down is a vertical translation. The new figure created from the translation is called the **image.** The original figure is called the **pre-image.**



3. Look at the triangle shown on the coordinate plane.





   a. List the ordered pairs for the vertices of $\triangle ABC$.

b. Place your triangle on $\triangle ABC$, and translate it -6 units vertically. Trace the new triangle, and label the vertices A', B', and C' in $\triangle A'B'C'$ so the vertices correspond to the vertices A, B, and C in $\triangle ABC$.

c. List the ordered pairs for the vertices of $\triangle A'B'C'$.

d. Place your triangle on $\triangle ABC$, and translate it -6 units horizontally. Trace the new triangle, and label the vertices A'', B'', and C'' in $\triangle A''B''C''$ so the vertices correspond to the vertices A, B, and C in $\triangle ABC$.

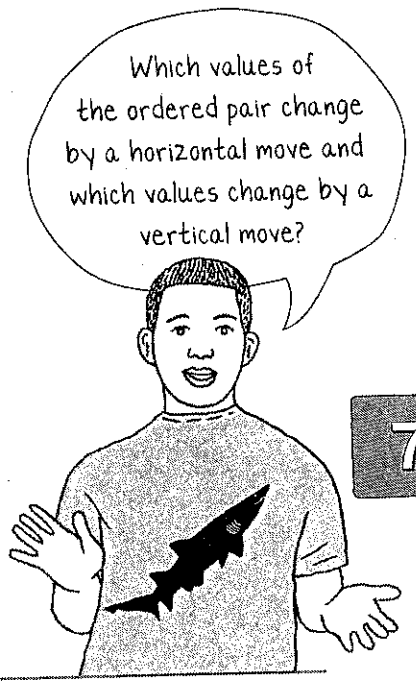
e. List the ordered pairs for the vertices of $\triangle A''B''C''$.

f. Compare the ordered pairs in $\triangle ABC$ and $\triangle A'B'C'$. How are the values in the ordered pairs affected by the translation?

g. Compare the ordered pairs in $\triangle ABC$ and $\triangle A''B''C''$. How are the values in the ordered pairs affected by the translation?

h. If you were to translate $\triangle ABC$ 10 units vertically to form $\triangle DEF$, what would be the ordered pairs of the corresponding vertices?

i. If you were to translate $\triangle ABC$ 10 units horizontally to form $\triangle GHJ$, what would be the ordered pairs of the corresponding vertices?



NAME _____ DATE _____

A Park Ranger's Work Is Never Done
Solving Problems Using Equations

Vocabulary

Give an example of each term.

1. two-step equation

2. inverse operations

3. solution

4. coefficient

5. constant

6. Properties of Equality

Problem Set

Name the inverse operations at each step.

1. $5x + 15 = 75$

$5x + 15 - 15 = 75 - 15$ Add 15 and subtract 15.

$5x = 60$

$\frac{5x}{5} = \frac{60}{5}$ Multiply by 5 and divide by 5.

$x = 12$

1

2. $4x - 3 = 37$

$4x - 3 + 3 = 37 + 3$ _____

$4x = 40$

$\frac{4x}{4} = \frac{40}{4}$ _____

$x = 10$

3. $\frac{t}{3} + 14 = 29$

$\frac{t}{3} + 14 - 14 = 29 - 14$ _____

$\frac{t}{3} = 15$

$3\left(\frac{t}{3}\right) = 3(15)$ _____

$t = 45$

4. $\frac{z}{9} - 4 = 7$

$\frac{z}{9} - 4 + 4 = 7 + 4$ _____

$\frac{z}{9} = 11$

$9\left(\frac{z}{9}\right) = 9(11)$ _____

$z = 99$

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5. $11 + 3x = 38$

$11 - 11 + 3x = 38 - 11$ _____

$3x = 27$

$\frac{3x}{3} = \frac{27}{3}$ _____

$x = 9$

6. $8x - 12 = 20$

$8x - 12 + 12 = 20 + 12$ _____

$8x = 32$

$\frac{8x}{8} = \frac{32}{8}$ _____

$x = 4$

7. $31 + \frac{x}{7} = 150$

$31 - 31 + \frac{x}{7} = 150 - 31$ _____

$\frac{x}{7} = 119$

$7\left(\frac{x}{7}\right) = 7(119)$ _____

$x = 833$

1

8. $52 - \frac{m}{11} = 40$

$52 - 52 - \frac{m}{11} = 40 - 52$

$-\frac{m}{11} = -12$

$-11\left(-\frac{m}{11}\right) = -11(-12)$

$m = 132$

Solve each equation. Name the inverse operations at each step.

9. $12x + 7 = 67$

$12x + 7 - 7 = 67 - 7$ Add 7 and subtract 7.

$12x = 60$

$\frac{12x}{12} = \frac{60}{12}$ Multiply by 12 and divide by 12.

$x = 5$

10. $6x - 9 = 33$

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11. $6 + \frac{m}{12} = 18$

_____

_____

12. $\frac{t}{10} - 21 = -161$

_____

_____

13. $5.4x + 13 = 121$

_____

_____

1

14. $22.8 - 2p = 44.4$

15. $\frac{3}{4}g + 16 = 34$

16. $\frac{x}{12} - 5 = 3.75$

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Solve each equation.

17. $10x + 13 = 150$

$10x + 13 = 150$

$10x + 13 - 13 = 150 - 13$

$10x = 137$

$\frac{10x}{10} = \frac{137}{10}$

$x = 13.7$

18. $6t - 10 = 86$

19. $85 + \frac{c}{4} = 99$

20. $9.6m + 6 = 30$

1

21. $25 - \frac{z}{8} = 12.5$

22. $3t - \frac{1}{4} = \frac{7}{8}$

23. $220 = 55 - 5.5$

24. $\frac{3}{5}x - 3 = 2\frac{1}{4}$

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25. $25.2t - 14.5 = 300.5$

26. $\frac{z}{30} + 275 = 1225$

1.1 A PARK RANGER'S WORK IS NEVER DONE

Solving Problems Using Equations

Learning Goal

In this lesson, you will:

- Write and solve two-step equations to represent problem situations.
- Solve two-step equations.

Key Terms

- inverse operations
- two-step equation
- solution
- coefficient
- constant
- Properties of Equality

The first equations to ever be written down using symbolic notation are much like the equations you will study in this lesson. They first appeared in a book called the Whetstone of Witte by Robert Recorde in 1557. This book is notable because it contained the first recorded use of the equals sign. Recorde got tired of writing the words "is equal to" in all his equations so he decided that a pair of parallel lines of the same length sitting sideways would be the perfect symbol because, as he said, "no two things can be more equal." Here are the first two equations ever written:

$$14x + 15 = 71$$

$$20x - 18 = 102$$

Can you solve the world's oldest symbolic equations?

Problem 1 Building a Walkway

1

Many situations can be modeled by equations that need more than one operation to solve them.

1. At a local national park, the park rangers decide that they want to extend a wooden walkway through the forest to encourage people to stay on the path. The existing walkway is 150 feet long. The park rangers believe that they can build the additional walkway at a rate of about 5 feet per hour.

   a. How many total feet of walkway will there be after the park rangers work for 5 hours?

   b. How many total feet of walkway will there be after the park rangers work for 7 hours?

   c. Define a variable for the amount of time that the rangers will work. Then, use the variable to write an expression that represents the total number of feet of walkway built, given the amount of time that the rangers will work.

   d. How many hours will the rangers need to work to have a total of 500 feet of walkway completed?

   e. Explain the reasoning you used to solve part (d).

   f. What mathematical operations did you perform to calculate your answer to part (d)?

g. Write an equation that you can use to determine the amount of time the rangers need to build a total of 500 feet of walkway. Then, determine the value of the variable that will make this equation true.

h. Interpret your answer in terms of this problem situation.

2. How many hours will the rangers need to work to build a total of 270 feet of walkway? Explain your reasoning.

a. What mathematical operations did you perform to determine your answer?

b. Explain why using these mathematical operations gives you the correct answer.

c. Write an equation that you can use to determine the amount of time it will take to have a total of 270 feet of walkway completed.

d. Determine the value of the variable that will make this equation true.

1

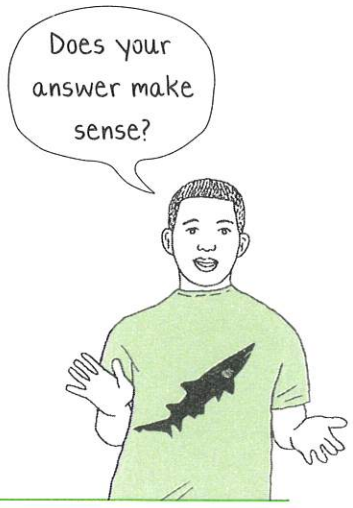
e. Interpret your answer in terms of this problem situation.

3. How many hours will the rangers need to work to build a total of 100 feet of walkway? Explain your reasoning.

a. What mathematical operations did you perform to determine your answer?

b. Write an equation that you can use to determine the amount of time it will take to have a total of 100 feet of walkway completed.

c. Determine the value of the variable that will make this equation true.



d. Interpret your answers in terms of this problem situation.

Problem 2 Rescuing a Bear Cub

1. Part of a park ranger's job is to perform rescue missions for people and animals. Suppose that a bear cub has fallen into a steep ravine on the park grounds. The cub is 77 feet below the surface of the ground in the ravine. A ranger coaxed the cub to climb into a basket attached to a rope and is pulling up the cub at a rate of 7 feet per minute.

   a. How many feet below the surface of the ground will the cub be in 6 minutes?

   b. How many feet below the surface of the ground will the cub be in 11 minutes?

   c. Define a variable for the amount of time spent pulling the cub up the ravine. Then use the variable to write an expression that represents the number of feet below the surface of the ground the cub is, given the number of minutes that the ranger has spent pulling up the cub.

   d. In how many minutes will the cub be 14 feet from the surface?

e. Explain your reasoning you used to solve part (d).

f. What mathematical operations did you perform to determine your answer to part (d)?

g. Explain why using these mathematical operations gives you the correct answer.

h. Write an equation that you can use to determine the number of minutes it takes for the cub to be 14 feet below the surface of the ground by setting the expression you wrote in part (c) equal to 14. Then determine the value of the variable that will make the equation true.

2. In how many minutes will the cub be 28 feet from the surface?

a. Explain your reasoning.

b. What mathematical operations did you perform to determine your answer?

c. Explain why using these mathematical operations gives you the correct answer.

d. Write an equation that you can use to determine in how many minutes the cub will be 28 feet from the surface. Then, determine the value of the variable that will make the equation true.

Problem 3 Solving Two-Step Equations

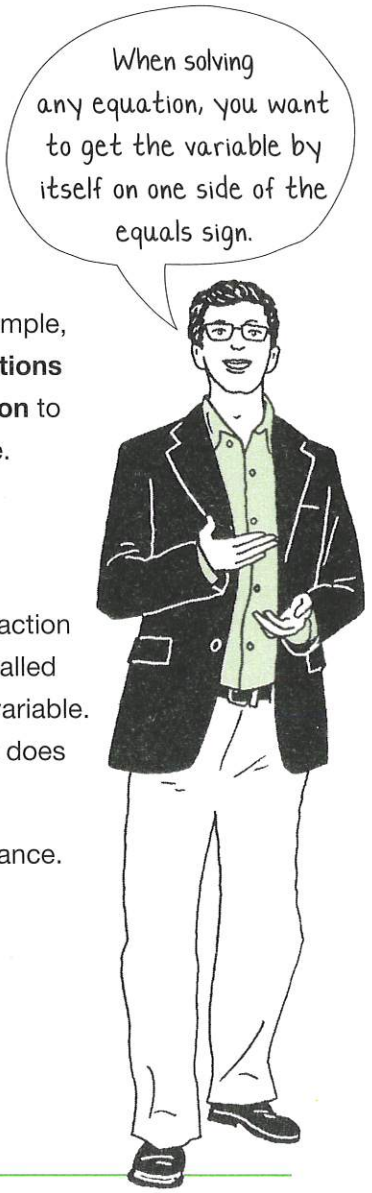
In Problems 1 and 2, you were solving two-step equations. To solve two-step equations you need to perform *inverse operations*. **Inverse operations** are operations that "undo" each other. For example, adding 3 and subtracting 3 are inverse operations. **Two-step equations** are equations that require two inverse operations to solve. A **solution** to an equation is any value for a variable that makes the equation true.

Let's consider the equation:

$$2m - 6 = 22$$

The left side of this equation has two terms separated by the subtraction operation. The 2 in the first term of the left side of the equation is called the *coefficient*. A **coefficient** is the number that is multiplied by a variable. The terms 6 and 22 are called *constants*. A **constant** is a term that does not change in value.

Remember, when you are solving equations you must maintain balance.



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Two different examples of ways to solve the same two-step equation are shown.

	Method 1	Method 2
	$2m - 6 = 22$	$2m - 6 = 22$
Step 1:	$2m - 6 + 6 = 22 + 6$	$+ 6 = + 6$
	$2m = 28$	$2m = 28$
Step 2:	$\frac{2m}{2} = \frac{28}{2}$	$\frac{2m}{2} = \frac{28}{2}$
	$m = 14$	$m = 14$

1. Describe the inverse operations used in each step.

Step 1:

Step 2:

2. What is the difference between the strategies used to solve the equation?

3. Verify the solution is $m = 14$.

4. Solve each two-step equation. Show your work.

a. $5v - 34 = 26$

b. $3x + 7 = 37$

c. $23 + 4x = 83$

d. $2.5c - 12 = 13$

e. $\frac{3}{4}x + 2 = 4\frac{2}{3}$

f. $-\frac{2}{3}b + \frac{2}{5} = 6\frac{4}{5}$

g. $-\frac{t}{5} - 9 = 21$

h. $2 = 2.27 - \frac{s}{4}$

i. $12m - 17 = 139$

j. $121.1 = -19.3 - 4d$

k. $-23z + 234 = 970$

l. $7685 = 345 - 5d$

1

Talk the Talk

The **Properties of Equality** allow you to balance and solve equations involving any number.

Properties of Equality	For all numbers a, b, and c, ...
Addition Property of Equality	If $a = b$, then $a + c = b + c$.
Subtraction Property of Equality	If $a = b$, then $a - c = b - c$.
Multiplication Property of Equality	If $a = b$, then $ac = bc$.
Division Property of Equality	If $a = b$ and $c \neq 0$, then $\frac{a}{c} = \frac{b}{c}$.

1. Describe the strategies you can use to solve any two-step equation.

2. Describe a solution to any equation.

Be prepared to share your solutions and methods.

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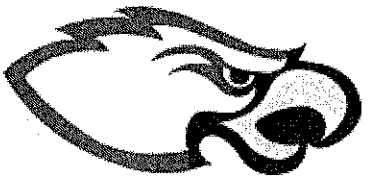
If AVAILABLE: Students should complete 30 minutes of ALEKS daily too!

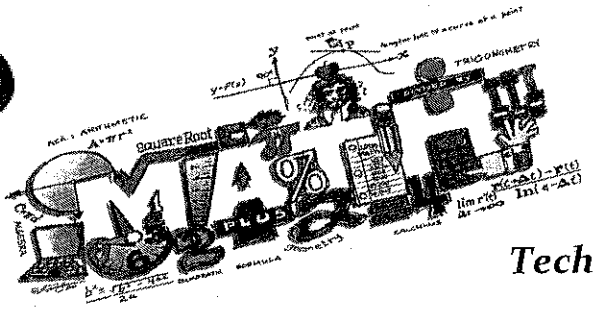
Email your teacher & Mr. Sayers for log-in info from 9:30 – 11am or 1pm-2:30pm.

Email: scott.sayers@richlandone.org, Lawanda.champaign@richlandone.org

Kevin.fletcher@richlandone.org

All assignments will be GRADED! Please be sure to submit your completed packet NO LATER THAN 5 days upon returning to school.





8th Grade

Suggested Timeline

Technology-Free Alternative

Days	Activity Math Essentials
Day 11	10 mins- %PERCENT WORD PROBLEM #1 10 mins- RISE Word Problem#9 **20 mins- SOLVE Equation v/s EXPRESSION #s 1-4** 15 mins- ALEKS
Day 12	10 mins- %PERCENT WORD PROBLEM #2 10 mins- RISE Word Problem#8 **20 mins- SOLVE Equation v/s EXPRESSION #s 5-8** 15 mins- ALEKS
Day 13	10 mins- %PERCENT WORD PROBLEM #3 10 mins- RISE Word Problem#7 **20 mins- SOLVE Equation v/s EXPRESSION #s 9-12** 15 mins- ALEKS
Day 14	10 mins- %PERCENT WORD PROBLEM #4 10 mins- RISE Word Problem#6 **20 mins- SOLVE Equation v/s EXPRESSION #s 13-16** 15 mins- ALEKS
Day 15	10 mins- %PERCENT WORD PROBLEM #5 10 mins- RISE Word Problem#5 **20 mins- SOLVE Equation (7-S.8) v/s EXPRESSION (7-R.15)** 15 mins- ALEKS
Day 16	10 mins- %PERCENT WORD PROBLEM #6 10 mins- RISE Word Problem#4 **20 mins- NOTES- TRIANGLE PROPERTIES pg 1** 15 mins- ALEKS
Day1 7	10 mins- %PERCENT WORD PROBLEM #7 10 mins- RISE Word Problem#3 **20 mins- NOTES- TRIANGLE PROPERTIES pg 2**

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Day 18	10 mins- %PERCENT WORD PROBLEM #8 10 mins- RISE Word Problem#2 **20 mins- NOTES- TRIANGLE PROPERTIES pg 3** 15 mins- ALEKS
Day 19	10 mins- %PERCENT WORD PROBLEM #9 10 mins- RISE Word Problem#1 **20 mins- SC Ready Review #4- Pythagorean #1-4** 15 mins- ALEKS
Day 20	10 mins- %PERCENT WORD PROBLEM #10 10 mins- RISE Word Problem QUIZ #9 (FACETIME me) **20 mins- SC Ready Review #4- Pythagorean #5-7** 15 mins- ALEKS
Day 21	10 mins- %PERCENT WORD PROBLEM #11 10 mins- RISE Word Problem QUIZ #8 (FACETIME me) **20 mins- SC Ready Review #4- Pythagorean #8-11** 15 mins- ALEKS
Day 22	10 mins- %PERCENT WORD PROBLEM #12 10 mins- RISE Word Problem QUIZ #7 (FACETIME me) **20 mins- TEST-SC Ready Review #4- Pythagorean** (Zoom) 15 mins- ALEKS
Day 23	10 mins- SIMILAR Figures Word Problem #1 10 mins- RISE Word Problem QUIZ #6 (FACETIME me) **20 mins- TEST CORRECTIONS-SC Ready Review #4** 15 mins- ALEKS
Day 24	10 mins- SIMILAR Figures Word Problem #2 10 mins- RISE Word Problem QUIZ #5 (FACETIME me) **20 mins- Parent FUNCTION Graphs (Linear v/s Non)(7-V.7)** 15 mins- ALEKS
Day 25	10 mins- SIMILAR Figures Word Problem #3 10 mins- RISE Word Problem QUIZ #4 (FACETIME me) **20 mins- Parent FUNCTION Graphs (Names) (A1-CC.1)** 15 mins- ALEKS
Day 26	10 mins- SIMILAR Figures Word Problem #4 10 mins- RISE Word Problem QUIZ #3 (FACETIME me) **20 mins- Identify Functions (Vertical Line Test) (A1-Q.5)** 15 mins- ALEKS
Day 27	10 mins- SIMILAR Figures Word Problem #5 10 mins- RISE Word Problem QUIZ #2 (FACETIME me) **20 mins- Identify Functions (Equa & Graphs) (A1-S.1)** 15 mins- ALEKS
Day 28	10 mins- SIMILAR Figures Word Problem #6 10 mins- RISE Word Problem QUIZ#1 (FACETIME me) **20 mins- Identify Functions (Table & Mapping Diagra) (A1-S.2)**
Day 29	10 mins- SIMILAR Figures Word Problem #7 10 mins- RE-DO RISE Word Problem ANY QUIZ (FACETIME me) **20 mins- FIND SLOPE given GRAPH (8-Y.1)**
Day 30	10 mins- SIMILAR Figures Word Problem #8 10 mins- RE-DO RISE Word Problem ANY QUIZ (FACETIME me) **20 mins- FIND SLOPE given 2 points & Equation (8-Y.2)(8-Y.4)**

Triangle Properties

(1)

Why are triangles among the MOST IMPORTANT objects studied in mathematics?

What is the strongest shape? Why?

What are some REAL-LIFE uses of triangles that we see?

(2)

Triangle Inequality Theorem

First step is to determine if the 3 side lengths can CORRECTLY form a triangle. This is called the Triangle Inequality Theorem.

(3)

Right Triangle

After we determine that the 3 side lengths actually work to form a triangle, now we can determine if the 3 sides form a RIGHT TRIANGLE

(4)

Name Triangles by Outside

We can NAME a triangle by its outside Side lengths.

⑤ Name Triangles by INSIDE

⑥ Name Triangles by BOTH OUTSIDE & INSIDE

⑦ Perimeter v/s Area of Triangles

⑧ Distance v/s Midpoint

(9)
Degrees° inside a Triangle affects outside SIDE Lengths

(10)
Angle Outside of a triangle

(11)
Triangle Midsegment theorem

(12)
Similar Triangles

Kuta Software - Infinite Pre-Algebra

Name_____

Similar Figure Word Problems

Date_____ Period____

Answer each question and round your answer to the nearest whole number.

1) A 6 ft tall tent standing next to a cardboard box casts a 9 ft shadow. If the cardboard box casts a shadow that is 6 ft long then how tall is it?

2) A telephone booth that is 8 ft tall casts a shadow that is 4 ft long. Find the height of a lawn ornament that casts a 2 ft shadow.

3) A map has a scale of 3 cm : 18 km. If Riverside and Smithville are 54 km apart then they are how far apart on the map?

4) Find the distance between Riverside and Milton if they are 12 cm apart on a map with a scale of 4 cm : 21 km.

5) A model house is 12 cm wide. If it was built with a scale of 3 cm : 4 m then how wide is the real house?

6) Oak Grove and Salem are 87 mi from each other. How far apart would the cities be on a map that has a scale of 5 in : 29 mi?

7) A map has a scale of 2 in : 6 mi. If Clayton and Centerville are 10 in apart on the map then how far apart are the real cities?

8) A statue that is 12 ft tall casts a shadow that is 15 ft long. Find the length of the shadow that a 8 ft cardboard box casts.

Answer each question and round your answer to the nearest tenth.

9) A model house has a scale of 1 in : 2 ft. If the real house is 26 ft wide then how wide is the model house?

10) A 6.5 ft tall car standing next to an adult elephant casts a 33.2 ft shadow. If the adult elephant casts a shadow that is 51.5 ft long then how tall is it?

11) If a 42.9 ft tall flagpole casts a 253.1 ft long shadow then how long is the shadow that a 6.2 ft tall woman casts?

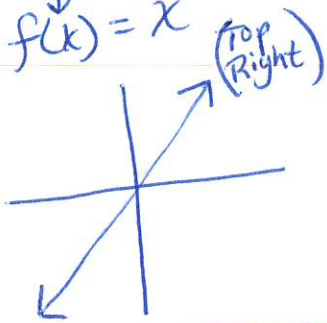
12) Georgetown and Franklin are 9.7 in apart on a map that has a scale of 1.1 in : 15 mi. How far apart are the real cities?

Parent Functions and their graphs

(+) Positive Linear

$y = x$

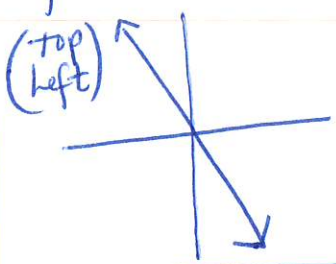
$f(x) = x$



(-) Negative Linear

$y = -x$

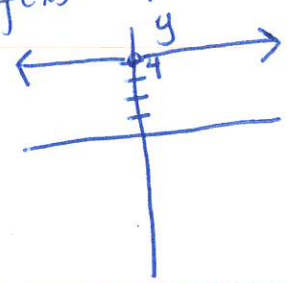
$f(x) = -x$



(+) Positive Constant

$y = 4$

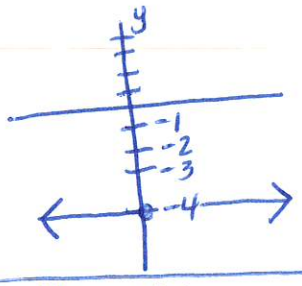
$f(x) = 4$



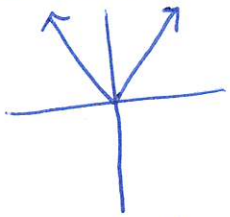
(-) Negative Constant

$y = -4$

$f(x) = -4$



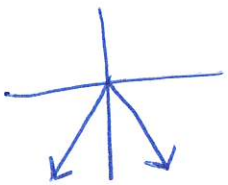
(+) Positive Absolute Value



$y = |x|$

$f(x) = |x|$

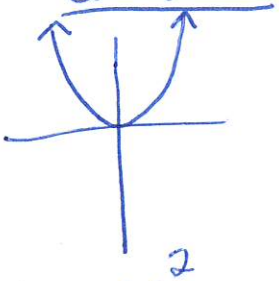
(-) Negative Absolute Value



$y = -|x|$

$f(x) = -|x|$

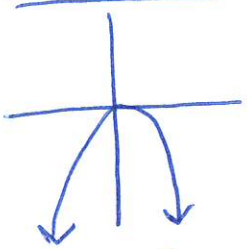
(+) Positive Quadratic



$y = x^2$

$f(x) = x^2$

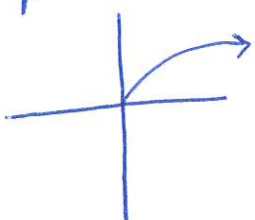
(-) Negative Quadratic



$y = -x^2$

$f(x) = -x^2$

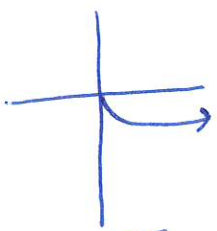
(+) Positive Square Root $\sqrt{\ }$



$y = \sqrt{x}$

$f(x) = \sqrt{x}$

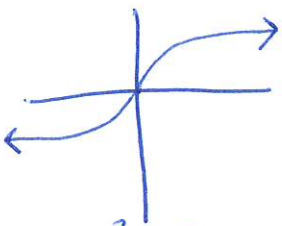
(-) Negative Square Root $\sqrt{\ }$



$y = -\sqrt{x}$

$f(x) = -\sqrt{x}$

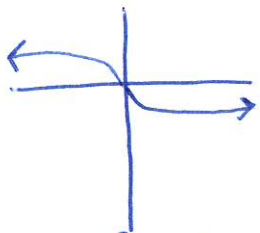
(+) Positive Cube Root $\sqrt[3]{x}$



$y = \sqrt[3]{x}$

$f(x) = \sqrt[3]{x}$

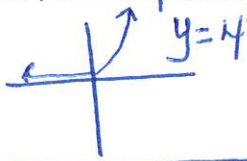
(-) Negative Cube Root $\sqrt[3]{x}$



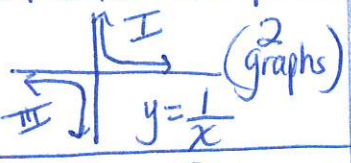
$y = -\sqrt[3]{x}$

$f(x) = -\sqrt[3]{x}$

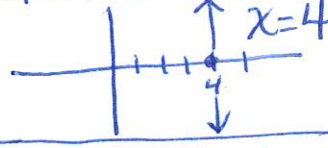
(+) Positive Exponential



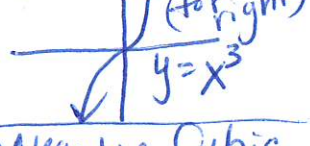
(+) Positive Reciprocal



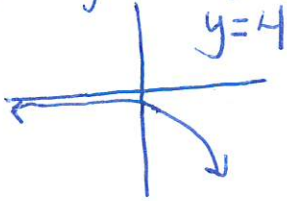
(+) Positive Constant



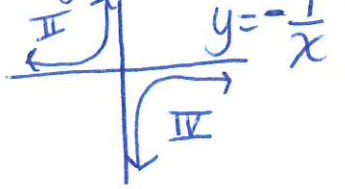
(+) Positive Cubic



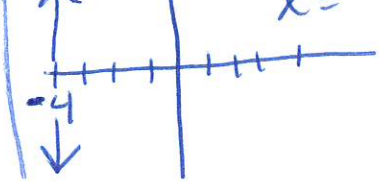
(-) Negative Exponential



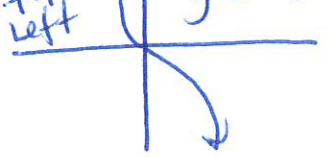
(-) Negative Reciprocal



(-) Negative Constant



(-) Negative Cubic



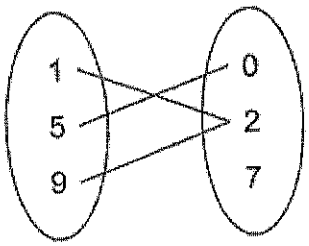
Name: _____ Date: _____

Identifying Functions

This mapping is a Function - True or False?

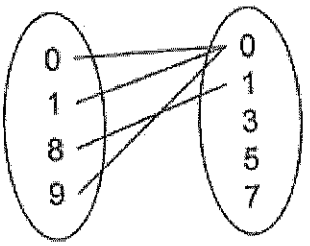
Determine whether each diagram depicts a function or not.

1)



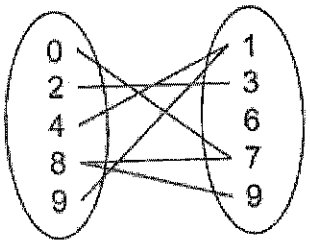
Function: _____

2)



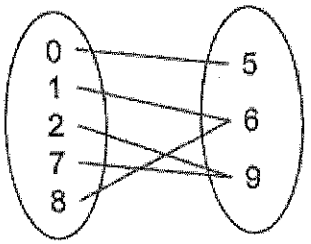
Function: _____

3)



Function: _____

4)



Function: _____

Each table is a function - true or false.

5)

X	Y
4	2
2	4
3	2
0	4

6)

X	Y
-4	4
3	2
2	3
3	-4

Each coordinate is a function, true or false?

7) {(3,2), (0,2), (1,2), (3,-3)}

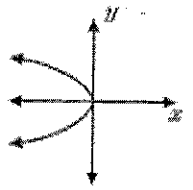
8) {(-1,1), (1,-2), (2,1)}

9) {(3,2), (4,2), (-4,2)}

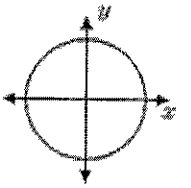
10) {(-5,5), (-5,2)}

11) Which graph represents a function?

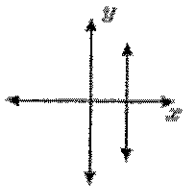
A.



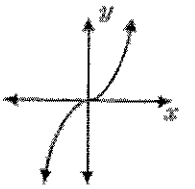
B.



C.



D.



12) For a function,

A. Three (3) inputs give five (5) different outputs.
B. For each one (1) input, there is one (1) output.
C. For each one (1) input, there are two (2) outputs.

13) What are the outputs in the following relation?

{(3, 8), (9, -2), (4, -5)}

A. 8, -2, -5
B. 3, 9, 4
C. 3, -2, 4
D. 8, 9, 4

14) Inputs refer to _____, and outputs refer to _____.

A. y-values, x-values
B. x-values, y-values
C. x-values, x-values
D. y-values, y-values

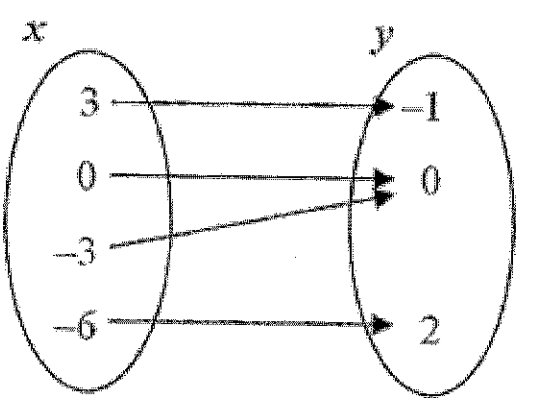
15) Is the following relation a function?

{(1, 2), (4, -3), (4, 7), (8, -6)}

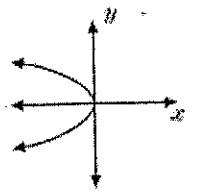
A. Yes
B. No

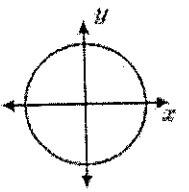
16) Does the mapping diagram represent a function? Why or why not?

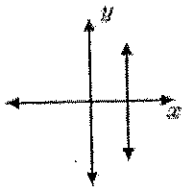
A. Yes, each input has one output.
B. Yes, each input has more than one output.
C. No, each input has one output.
D. No, each input has more than one output.

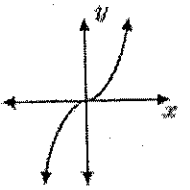


11) Which graph represents a function?

A. 

B. 

C. 

D. 

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15) Is the following relation a function?

{(1, 2), (4, -3), (4, 7), (8, -6)}

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B. No

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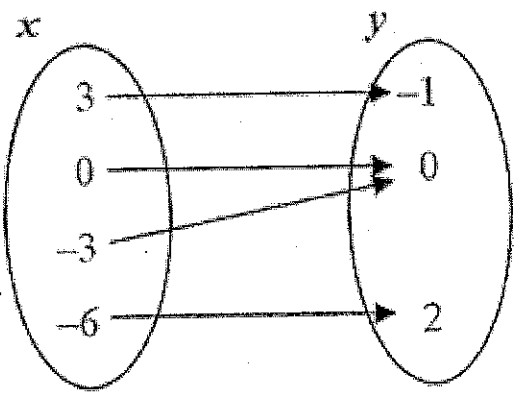
C. No, each input has one output.
D. No, each input has more than one output.



G-S.7 Circles: Circumference = $C = 2\pi r$ & Area = $A = \pi r^2$

1) The area of a circle is 4π square feet. What is the radius?

2) The area of a circle is 9π square centimeters. What is the diameter?

3) The area of a circle is 81π square feet. What is the radius?

4) The circumference of a circle is 12π meters. What is the radius?

5) The circumference of a circle is 20π centimeters. What is the diameter?

6) The radius of a circle is 2 centimeters. What is the circumference? (ANSWER as a DECIMAL)

7) The diameter of a circle is 8 inches. What is the area? (ANSWER in terms of pi)

8) The diameter of a circle is 16 Kilometers. What is the circumference? (ANSWER as a DECIMAL)

9) The circumference of a circle is 16π meters. What is the area? (ANSWER in terms of pi)

10) The circumference of a circle is 4π Kilometers. What is the area? (ANSWER as a Decimal)

11) The area of a circle is 16π square miles. What is the radius?

12) The area of a circle is 16π square inches. What is the circumference? (ANSWER in terms of pi)

13) The circumference of a circle is 8π feet. What is the area? (ANSWER as a DECIMAL)

14) The area of a circle is π square centimeters. What is the circumference? (in terms of pi)

15) The area of a circle is 9π square feet. What is the circumference? (as a DECIMAL)

(16) The circumference of a circle is 2π kilometers. What is the radius?

(17) The radius of a circle is 4 meters. What is the area? (in terms of pi)

(18) The circumference of a circle is 10π inches. What is the radius?

(19) The area of a circle is 81π meters. What is the circumference?

(20) The area of a circle is 4π square feet. What is the diameter?

(21) The circumference of a circle is 4π inches. What is the radius?

(22) The circumference is 3π inches. What is the radius? (as a DECIMAL)

(23) The are of a circle is 100π square inches. What is the circumference? (in terms of pi)

(24) The area is 64π square feet. What is the radius?

(25) The circumference is 5π miles. What is the diameter?

- subtract w/borrow
- add
- multiply
- place value
- Distributive Property
- Perimeter
- Area
- Factor

SC Ready Review #1 {Non-calculator}

Name: _____

Date: _____

Block: _____

Classification: _____

Monday

(7-E.1)

1) 77,751 − 34,779

(6-H.2)

5) 8.9 × 3.8

(6-F.2)

9) 0.1

In what place is the 1?

(A1-H.2)

13) Simplify $3(3+9v)$

(G-S.2)

17) A square has side length of 6.2 miles. What is the area?

Tuesday

(7-E.1)

2) 67,720 − 48,785

(6-H.2)

6) 0.91 × 0.64

(6-F.2)

10) 84.6

What digit is in the tenths place?

(A1-H.2)

14) Simplify $(2+n)(2)$

(G-S.2)

18) A square has side length of 6.2 miles. What is the perimeter?

Wednesday

(7-E.1)

3) 36.5 + 564.973

(6-H.2)

7) $562.63 \times 2.4 =$

(6-F.2)

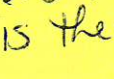
11) 84.6

What digit is in the tens place?

(A1-H.2)

15) Factor $21y + 49$

(G-S.2)

19) 

Area = 132 mi²

What is the missing length?

Thursday

(7-E.1)

4) 476.8 − 29.17

(6-H.2)

8) $9.6 \times 4.9 \times 2.6 =$

(6-F.2)

12) 72.94

What digit is in the ones place?

(A1-H.2)

16) Factor $63c + 27$

(G-S.2)

20) A rectangle has an area of 234 Km² and a base of 18 Km. What is the height?

Translate among (Fractions, Percents, Decimals)
6th grade: **6.NS.9 (pg 44)**

SC College and Career Ready Standards
7th grade: **7.NS.5 (pg 49)**

8th grade: **8.NS.3 (pg 55)**

Fraction, %Percent, Decimal QUIZ

Improper Fraction	Mixed Number	Decimal (round to hundredth)	Percent%	Proper Fraction
1) $\frac{6}{4} + \frac{5}{7}$ a) 1 b) $\frac{11}{11}$ c) $\frac{11}{28}$ d) $\frac{31}{14}$	**2)** $\frac{6}{4} + \frac{5}{7}$ a) $2\ \frac{11}{28}$ b) $2\ \frac{1}{3}$ c) $2\ \frac{3}{14}$ d) $2\ \frac{2}{3}$	**3)** $\frac{6}{4} + \frac{5}{7}$ a) 2.39 b) 2.33 c) 2.21 d) 2.67	**4)** $\frac{6}{4} + \frac{5}{7}$ a) 233% b) 221% c) 2.21% d) 267%	**5)** $\frac{6}{4} - \frac{5}{7}$ a) $-1\frac{3}{3}$ b) $\frac{11}{11}$ c) 1 d) $\frac{11}{14}$
Improper Fraction	**Improper Fraction**	**Proportion/Rate/Ratio**	**Proportion/Rate/Ratio**	**Proportion/Rate/Ratio**
6) $\frac{6}{4} \times \frac{5}{7}$ a) $\frac{14}{15}$ b) $\frac{15}{14}$ c) $\frac{43}{20}$ d) $\frac{21}{10}$	**7)** $\frac{6}{4} \div \frac{5}{7}$ a) $\frac{14}{15}$ b) $\frac{15}{14}$ c) $\frac{43}{20}$ d) $\frac{21}{10}$	**8)** $\frac{6}{4} = \frac{?}{12}$ a) 3 b) 18 c) 6 d) 4	**9)** $\frac{7}{9} = \frac{?}{36}$ a) 7 b) 4 c) 28 d) 9	**10)** $\frac{2}{3} = \frac{14}{?}$ a) 2 b) 3 c) 7 d) 21

11) Which of the following has the greatest value?

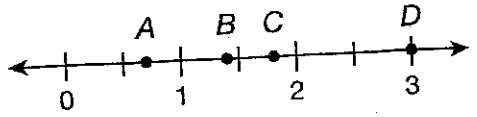
A. 0.58

B. 0.064

C. 40%

D. $\frac{4}{9}$

12) Which number is represented by point C on the number line below?



A. 0.8

B. 80%

C. $1\frac{4}{5}$

D. $2\frac{1}{8}$

13) Evan reported to his class that about $\frac{1}{4}$ of the population of the United States is under 18 years of age. Based on Evan's data, which of the following could be the percent of the U.S. population that is less than 18 years old?

A. 0.25%

B. 2.4%

C. 14%

D. 24.3%

14) Mr. Curtis wrote four numbers on the board for his class.

1, 137%, $\frac{43}{50}$, $1\frac{1}{4}$

A. Rename each number as a decimal to hundredth place.

15) **B.** Order the original numbers from greatest to least from question 14A above.