Name _____

Topics **1–6**
Cumulative/
Benchmark Assessment

1. Xavier asked 18 players on his baseball team whether they prefer using a wood or an aluminum bat. He used a calculator to compare the number of players who said they prefer using a wood bat to the total number he surveyed. The calculator showed the results as 0.22222222.

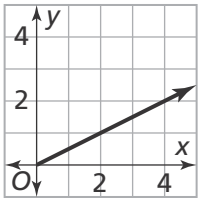
Part A

Write this number as a fraction.

Part B

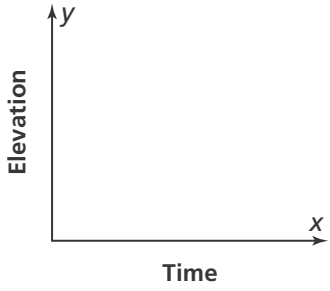
How many players preferred using a wood bat?

2. Which of the following statements is true? Select all that apply.



- ☐ The slope is positive.
- ☐ The *y*-intercept is 2.
- ☐ The relationship is proportional.
- ☐ The equation of the line is $y = 2x$.
- ☐ The equation of the line is $y = \frac{1}{2}x$.

3. Richard takes a hang gliding lesson. He lifts off at the top of a hill and glides downward for the first 5 minutes. Then he soars at a consistent elevation for 10 minutes. The last 3 minutes he glides upward until he lands on a smaller hill. Sketch a graph of Richard's gliding lesson over time.



4. What is the perimeter of the square?

$A = 64$ in.^{2}

Ⓐ 8 inches
Ⓑ 16 inches
Ⓒ 24 inches
Ⓓ 32 inches

5. A truck rental company charges $27 per day plus $0.79 per mile. What is the equation of the line in slope-intercept form?

6. The two-way frequency table shows the number of text messages sent by seventh and eighth graders.

Number of Texts		Students		
		7th	**8th**	**Total**
	0–50	72	57	129
	50+	48	73	121
	Total	120	130	250

Complete the two-way relative frequency table.

Number of Texts		Students		
		7th	**8th**	**Total**
	0–50			
	50+			
	Total			

7. Draw lines to match each equation on the left to its number of solutions on the right.

$3(4x - 2) = 12x - 6$	One solution
$3(4x - 2) = -12x - 6$	No solution
$-3(4x - 2) = -12x - 2$	Infinitely many solutions

8. The data in the table below represents a linear relationship. Fill in the missing data.

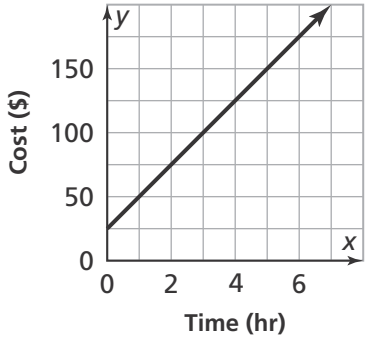
x	15	20	25	30	35
y	9.5			17	

9. Nolan says that Function A and Function B have the same slope. Is Nolan correct? Explain.

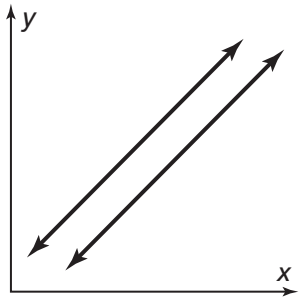
Function A

Function B					
x	6	12	18	24	30
y	9	13	17	21	25

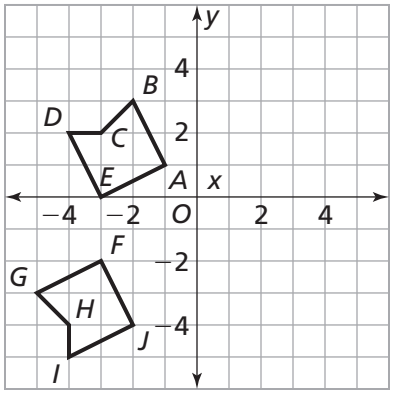
10. The graph of the line represents the cost of renting a jet ski. Write a linear function in the form $y = mx + b$ to represent the situation.



11. How many solutions does the system of equations have? Explain.



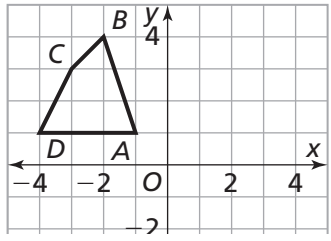
12. Describe the sequence of transformations that maps Figure *ABCDE* onto Figure *FGHIJ*.



13. Consider the system of equations below. What is the solution of the system?

$y = 4x - 8$
$4x + 2y = 20$

14. Draw the reflection of *ABCD* across the line $x = -1$.



What are the coordinates of point *C′*?

15. One equation in a system is $4x - 2y = 8$. Which equation gives the system no solution?

Ⓐ $y = 2x - 4$

Ⓑ $y = -2x + 4$

Ⓒ $y - 2x = 9$

Ⓓ $y = \frac{1}{4}x - 4$

16. The coordinates of $\triangle PQR$ are $P(1, 1)$, $Q(2, 2)$, and $R(3, 1)$. If $\triangle PQR$ is rotated 90° about the origin, what are the vertices of $\triangle P'Q'R'$?

Ⓐ $P'(-1, 1), Q'(-2, 2), R'(-1, 3)$

Ⓑ $P'(-1, -1), Q'(-1, -3), R'(-2, -2)$

Ⓒ $P'(1, -1), Q'(2, -2), R'(3, 1)$

Ⓓ $P'(-1, -1), Q'(-2, -2), R'(-3, 1)$

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17. One platter has 6 veggie wraps, 12 turkey wraps, and costs $64.50. Another platter has 8 veggie wraps, 8 turkey wraps, and costs $56.

Part A

Write a system of equations to represent the situation.

Part B

What is the cost of a veggie wrap?

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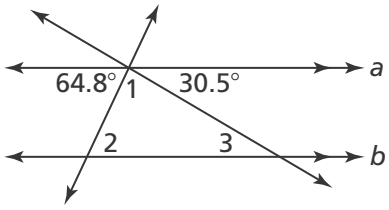
18. What are the measures of the interior angles of the triangles?



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19. The perimeter of a garden is 88 feet. The length is 12 feet greater than the width.

Part A

What system of equations could you use to find the dimensions of the garden?

Part B

What are the dimensions of the garden?

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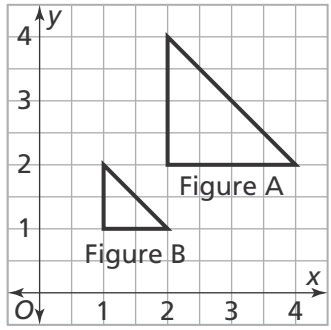
20. Figure B is the image of Figure A after a dilation with center (0, 0). What is the scale factor?



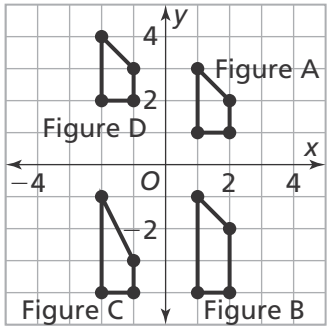
Ⓐ $\frac{1}{4}$

Ⓑ $\frac{1}{2}$

Ⓒ 2

Ⓓ 4

21. Which figure is a translation of Figure A?



Ⓐ Figure B

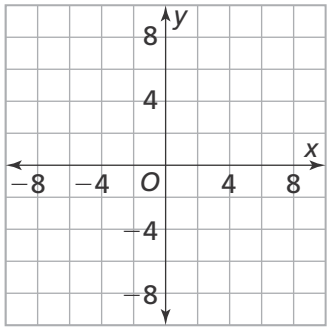
Ⓑ Figure C

Ⓒ Figure D

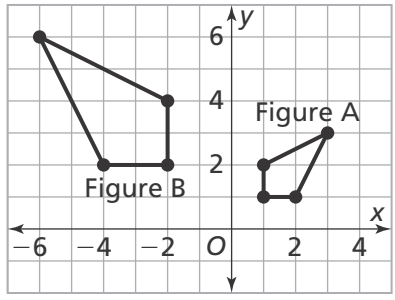
Ⓓ None of the above

22. Graph the system of equations and find the solution.

$$9x + 3y = 24$$
$$2y + 4x = 8$$



23. Describe a sequence of transformations that shows that Figure A is similar to Figure B.



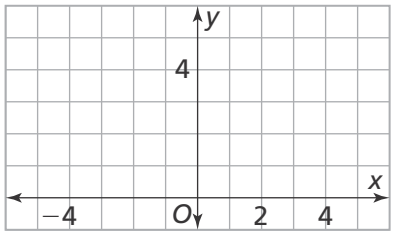
24. Use substitution to find a solution to the system of equations. Explain.

$$1.75x + 1.25y = 2.75$$
$$7x + 5y = 9$$

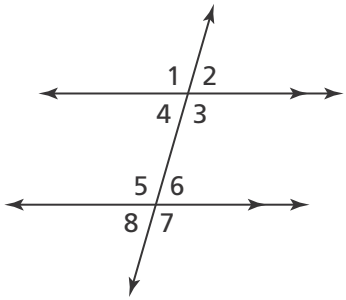
25. $\triangle ABC$ has vertices at $A(1, 1)$, $B(2, 3)$, and $C(3, 1)$. $\triangle DEF$ has vertices at $D(-1, 1)$, $E(-2, 4)$, and $F(-3, 1)$. Is $\triangle ABC$ congruent to $\triangle DEF$? Explain.

26. Graph the system of equations to determine the solution.

$$3x - 2y = -6$$
$$y = 1.5x + 3$$



27. Use the figure below.



Part A

What angles are congruent to $\angle 5$?

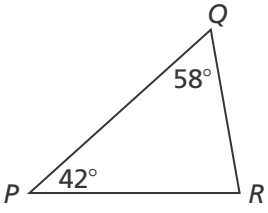
Part B

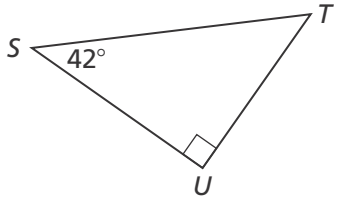
If $m\angle 6 = 85°$, what is the measure of $\angle 3$?

28. Solve the system of equations through elimination. Explain your method.

$$2a + 3b = 23$$
$$3a - 2b = 2$$

29. Is $\triangle PQR \sim \triangle STU$? Explain.





30. How many solutions does the following system have? Explain.

$$x + 4y = 0$$
$$16y = -4x$$

