

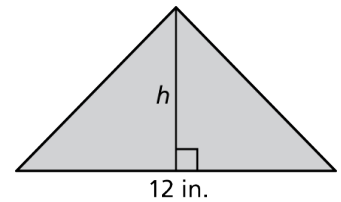
Math 8: Semester 1 Cumulative Final Review (Part 1)**Solve.**

1. $x - 7 = -13$

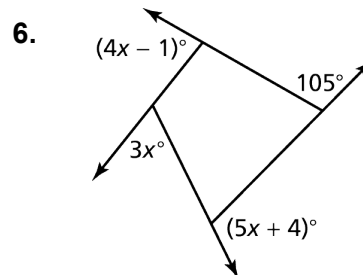
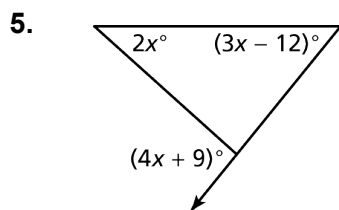
2. $15 - 3c = 3$

3. One cell phone plan charges \$20 per month plus \$0.15 per minute used. A second cell phone plan charges \$35 per month plus \$0.10 per minute used. Write and solve an equation to find the number of minutes you must talk to have the same cost for both calling plans.

4. a. Write the formula for the area of a triangle. $A =$ _____
b. Solve the formula for h .

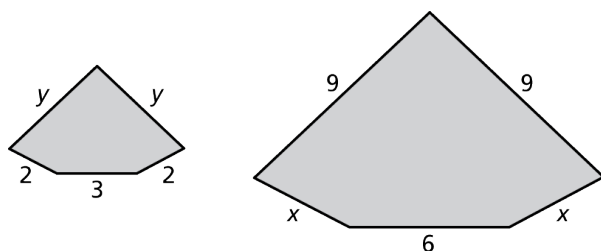


- c. The area of a triangle is 36 square inches. Use the new formula to find the height of the triangle in inches and in centimeters.

Find the measure of the exterior angle(s).

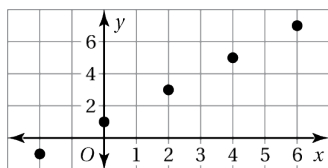
7. At Billy's Little League games snack shack he can either get 4 hot dogs and 2 popcorns for \$15 or he can get 3 hot dogs and 4 popcorns for the same price. Write a system of equations and solve to find the price of each item.

8. The two figures are similar. Find the values of x and y .



9. Use the graph or table to write a linear function that relates y to x .

a.



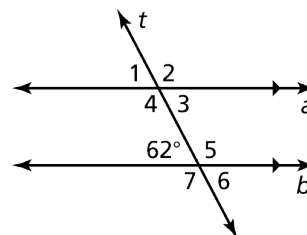
b.

x	-12	-6	0	6
y	6	3	0	-3

$y =$ _____

$y =$ _____

10. Use the figure to find the measure of $\angle 1$. Explain your answer by using a vocabulary term.



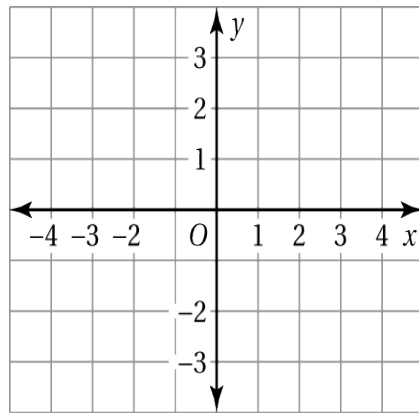
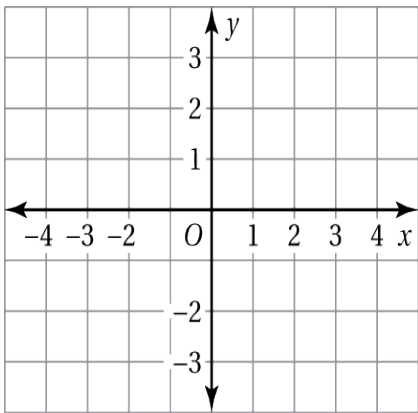
11. Find the measure of each angle of a regular polygon with 8 sides.

12. You want to determine if two triangles are similar. What is the minimum number of angles you need to measure to determine if the triangles are similar? Explain.

Find the slope and the y-intercept of the graph of the linear equation. Then sketch its graph.

13. $y = 3x - 2$

14. $2x + 4y = 6$



15. The equation $5x + 2y = 20$ represents the cost for a family to attend a play where x is the number of adults and y is the number of children. Find the intercepts and **interpret** the meaning of *each one*.

Write an equation of the line in slope-intercept form.

16. A line passing through $(0, 1)$ and $(-4, 5)$

17. A line with slope -2.5 and passing through $(2, 1.5)$

18. Recall that $0^{\circ}\text{C} = 32^{\circ}\text{F}$ and $100^{\circ}\text{C} = 212^{\circ}\text{F}$.

a. Using x for degrees Celsius and y for degrees Fahrenheit, find an equation of the line passing through $(0, 32)$ and $(100, 212)$.

b. What is the slope of the line? Explain what the slope means in terms of degrees Celsius and degrees Fahrenheit.

c. What is the y -intercept of the line? Explain what the y -intercept means in terms of degrees Celsius and degrees Fahrenheit.

Solve the system using any method you want.

19. $y = 3x + 4$
 $y - x = 2$

(\quad , \quad)

20. $y - 4x = 3$
 $2y = 8x + 5$

(\quad , \quad)

21. $y = \frac{1}{2}x - 1$
 $3x - y = -4$

(\quad , \quad)

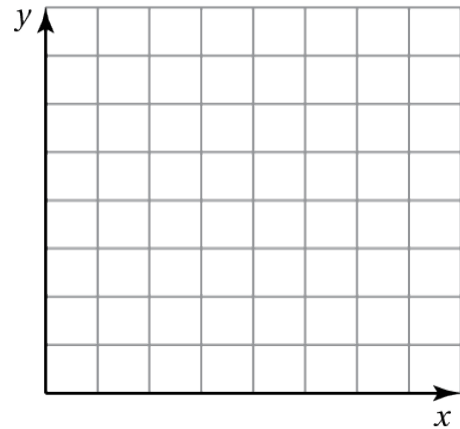
22. A clerk earns \$8 an hour.
- Write a function that relates the earnings E and hours worked h .
 - How much does the clerk earn after working 40 hours?

23. The table shows the cost y (in dollars) of x cold drinks.

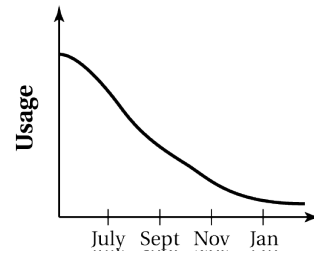
Drinks, x	0	2	4	6
Cost, y	0	3	6	9

- Graph the data and label both axis.
- Write a linear function that relates y to x .

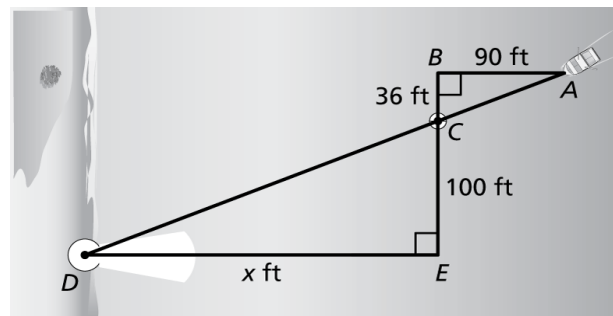
- How much does it cost to buy three drinks?



24. The graph shows the water usage for a business. Describe the change in usage from July to December.



25. You are on a boat in the ocean, at point A . You locate a lighthouse at point D , beyond the line of sight of the marker at point C . You travel 90 feet west to point B and then 36 feet south to point C . You travel 100 feet more to arrive at point E , which is due east of the lighthouse. What is the distance from point E to the lighthouse?



Math 8: Semester 1 Cumulative Final Review Part 1 (key)

1) $x = -6$

2) $y = 4$

3) $x = 300$ minutes

4) a. $A = \frac{bh}{2}$

b. $h = \frac{2A}{b}$

c. $h = 6\text{cm}$

5) $x = 21$; $4x + 9 = 93^\circ$

6) $x = 21$; $3x = 63^\circ$; $4x - 1 = 83^\circ$; $5x + 4 = 109^\circ$

7) **Equations:** $4h + 2p = 15$ and $3h + 4p = 15$
Hot dogs are \$3 and popcorn is \$1.50

8) $x = 4$; $y = 4.5$

9) a. $y = x + 1$;

b. $y = -\frac{1}{2}x$

10) $\angle 1 = 62^\circ$ because it corresponds to the angle that measures 62° .

11)

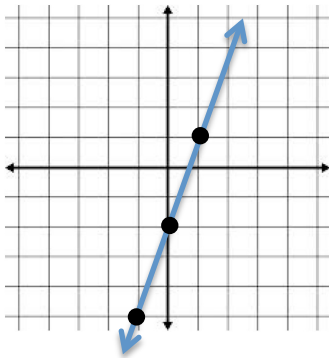
$$S = (n - 2)180$$

$$S = 6 \times 180 = 1080^\circ$$

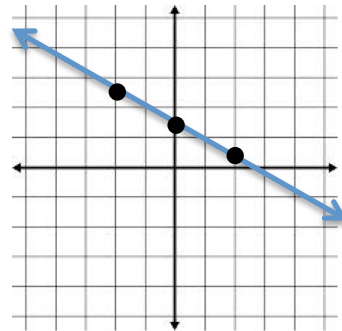
$$1080 \div 8 = 135^\circ$$

12) At least 2 angles measures must be the same for 2 triangles to be similar.

13) $m = 3$ and $b = -2$



14) $m = -\frac{1}{2}$ and $b = \frac{3}{2}$



15) **x-intercept** = $(4, 0)$ which means 4 adults and 0 children and the
y-intercept = $(0, 10)$ which means 0 adults and 10 children.

16) $y = -x + 1$

17) $y = -3x - 3$

18) a. $y = \frac{9}{5}x + 32$

b. A slope of $\frac{9}{5}$ means that for every 9 degrees Fahrenheit, there is a 5 degree change in Celsius.

c. The y-intercept of (0, 32) means when it is 0 degrees Celsius, it is 32 degrees Fahrenheit.

19) (-1,1)

20) $6 = 3$, no solution

21) (-2,-2)

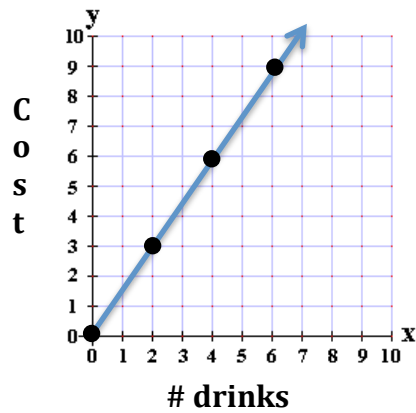
22) a. $E = 8h$

b. \$240

23) a.

b. $y = \frac{3}{2}x$

c. \$4.50



24) Answers will vary

25) 250 feet