Write an equation to model each situation. Combine any like terms in the equation, but do not solve.

1. Mr. Jones bought a car, fixed it up, and sold it for $28,000. He made a profit of 15%. Write an equation that could be used to calculate the original cost of the car. Do not solve.

2. Bella sells off 35% of her Skylanders figures and she started with 45 figures. Write an equation to model Bella's Skylanders collection.

3. **a**. You are in charge of buying the hamburger and chicken for a party. You have $60 to spend. The hamburger costs $2 per pound and chicken is $3 per pound. Write an equation that represents the different amounts of hamburger, x, and chicken, y, that you can buy.

b. If you buy 15 pounds of hamburger, how many pounds of chicken can you buy?

4. **a**. You are buying $48 worth of lawn seed that consists of two types of seed. One type is a quick-growing rye grass that costs $4 per pound, and the other type is a higher-quality seed that costs $6 per pound. Write an equation that represents the different amounts of $4 seed, x, and $6 seed, y, that you can buy.

Solve the following equations for y. Put the answers in slope-intercept form.

5. $-3x+6y=24$ **for** y

6. $2x-5y=15$ **for** y

7. $-4x-6y=10$ **for** y

8. $9x+12y=-12$ **for** y

Solve each equation for the given variable.

9. $A = \frac{1}{2}bh$ **for** b

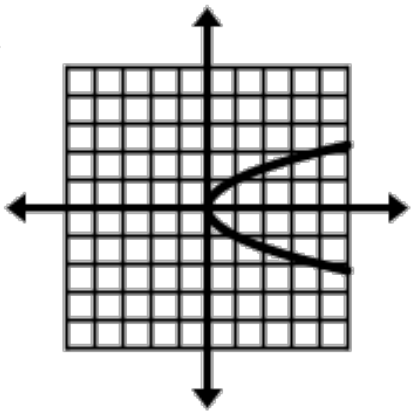
10. $A = \pi r^2$ **for** r^2

11. $C = 2\pi r$ **for** r

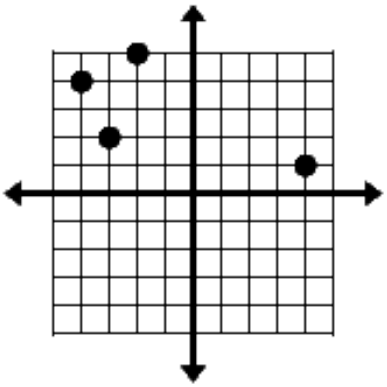
12. $W = \frac{a-b}{m}$ **for** a

#13-15: Identify the domain and range of each relation and state whether or not it is a function.

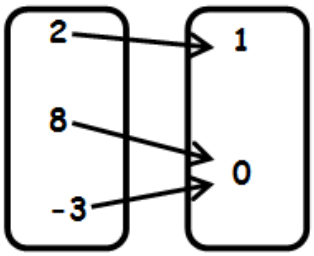
13.



14.



15.



16. Create a mapping for #14.

17. Create a mapping for $\{(4,5),(3,-2),(-2,5),(4,7)\}$ and determine if it is a function.

18. Evaluate $f(x) = x^2 + 3$ given the domain $\{-2, 0, 1, 2\}$.

19. If $f(x) = 4^x + 10$, what is $f(0)$?

20. If $g(x) = 5x^3 + 2$, what is $g(1.5)$?

Write an equation of the line.

21. parallel to $y = -2x + 13$ with a y-intercept of 8.

22. perpendicular to $y = \frac{1}{5}x + 6$ with a y-intercept of -9.

23. Line j is parallel to the line with the given equation and line j passes through ***P***.
Write the equation of line *j*. $y = 3x + 22$, ***P*(-4, 1)**

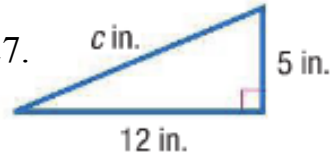
24. Line *k* is perpendicular to the line with the given equation and line *k* passes through *P*.
Write the equation of line *k*. $y = -8x + 11$, ***P*(0, -5)**

25. Write the equation of the line that passes through $(4, -1)$ and is parallel to the line $y = -6x + 2$.

26. Write an equation of the line that passes through $(4, 6)$ and is perpendicular to $y = 2x - 5$.

Find the length of the missing side.

27.



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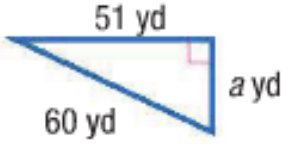
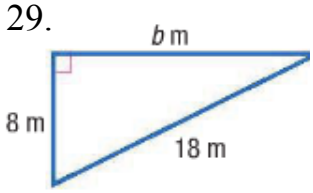


29.

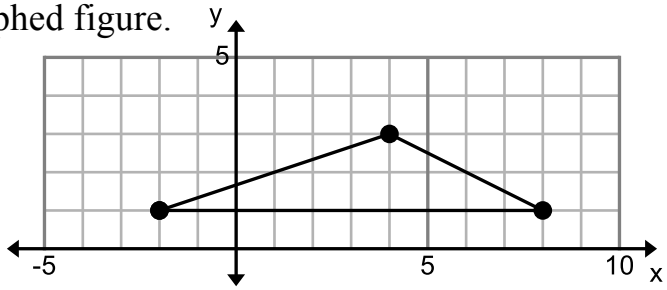


Use the distance formula to find the distance between the following coordinate points. $D = \sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}$

30. (6,4) (-3,-2) 31. (4,-5) (-9,8) 32. (-3,1) (-5, -9) 33. (2,8) (14,3)

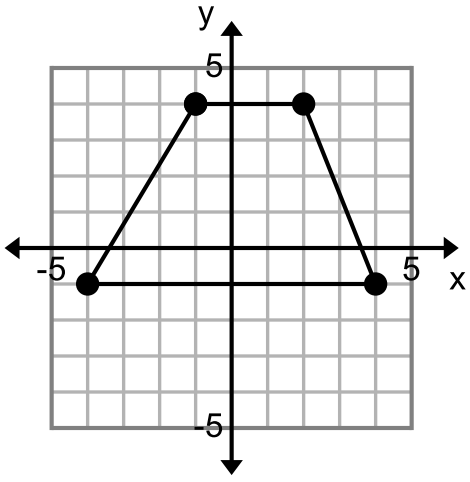
34. Find the perimeter and area of the graphed figure.

A(-2,1) B(4,3) C(8,1)



35. Find the perimeter and area of the graphed figure.

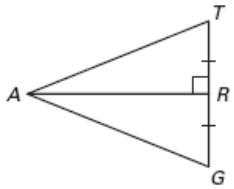
A(-1,4) B(2, 4) C(4,-1) D(-4,-1)



A. Decide whether enough information is given to prove that the triangles are congruent.

B. If there IS enough information, state the congruence postulate or theorem you would use.

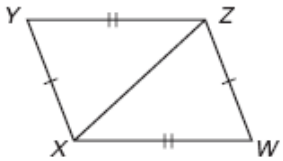
36.



A. Yes or No

B. If Yes, _____

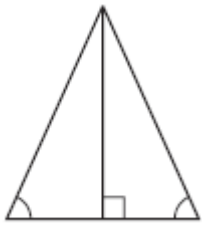
37.



A. Yes or No

B. If Yes, _____

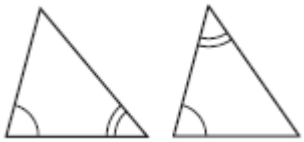
38.



A. Yes or No

B. If Yes, _____

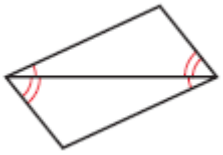
39.



A. Yes or No

B. If Yes, _____

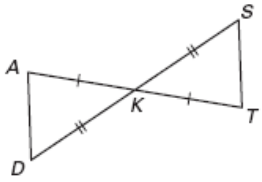
40.



A. Yes or No

B. If Yes, _____

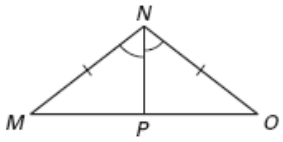
41.



A. Yes or No

B. If Yes, _____

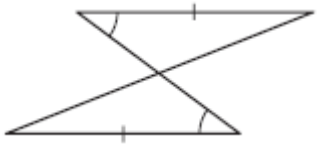
42.



A. Yes or No

B. If Yes, _____

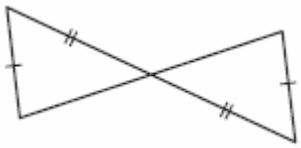
43.



A. Yes or No

B. If Yes, _____

44.

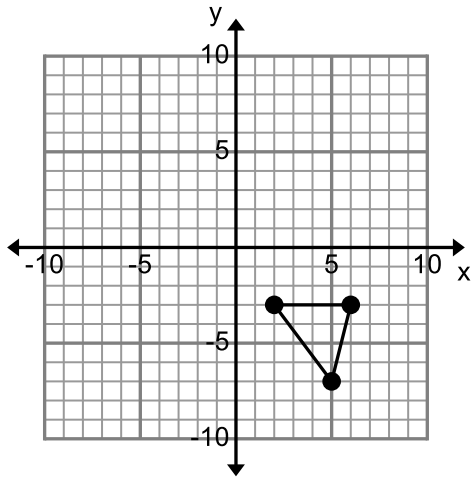


A. Yes or No

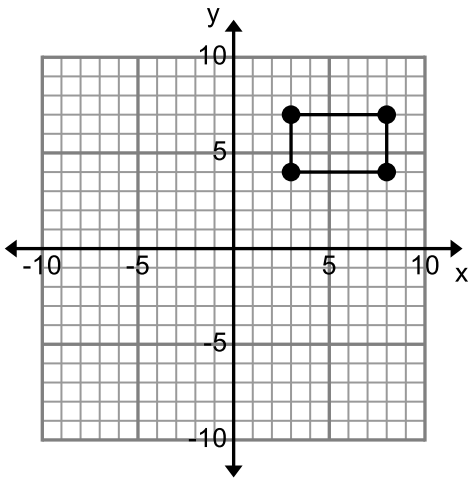
B. If Yes, _____

Transform each given geometric figure on the coordinate plane as described. Write the new coordinates.

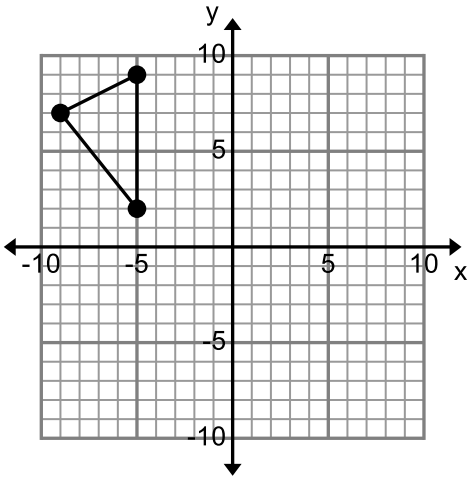
45. Translate $\triangle EFG$ using $(x, y) \rightarrow (x, y+8)$



46. Rotate $HJKL$ about the origin 90^{o} counterclockwise.



47. Reflect $\triangle ABC$ over the *y*-axis.



48. Reflect $MNOP$ over the line $y = x$.