

Pre-Algebra Entering Algebra: Summer Learning

Solve.

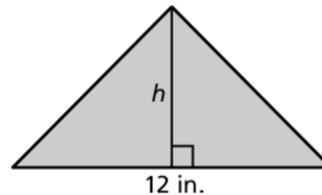
1. $x - 7 = -13$

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.

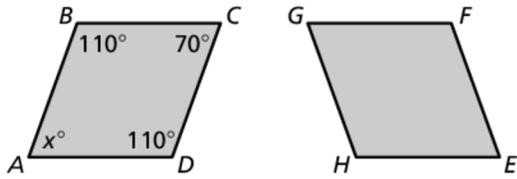
- b. Solve the formula for h .



- 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.

In Exercises 5 and 6, use the following information.

Parallelograms $ABCD$ and $EFGH$ are congruent.

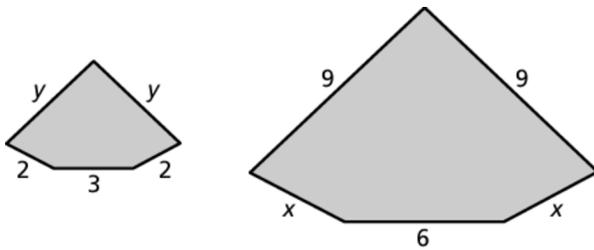


5. Which side of $EFGH$ is congruent to side AD ?

6. Find the measure of $\angle E$.

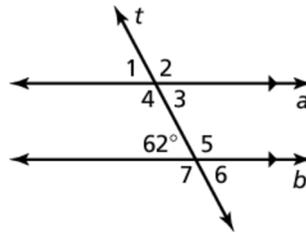
7. A triangle has vertices $A(-1, 3)$, $B(0, 2)$, and $C(-4, 0)$. Find the coordinates of the triangle after translating it up 2 units and reflecting it in the x -axis.

8. The two figures are similar. Find the values of x and y , and the ratios (larger to smaller) of the perimeters and areas.



9. An original piece of artwork is 3 feet by 2.5 feet. A reprint of the artwork is 6 inches by 5 inches. Are the pieces similar? If so, what is the ratio of their corresponding side lengths?

10. Use the figure to find the measure of $\angle 1$.

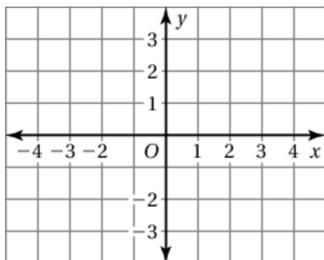


11. Find the measure of each angle of a regular polygon with 8 sides.

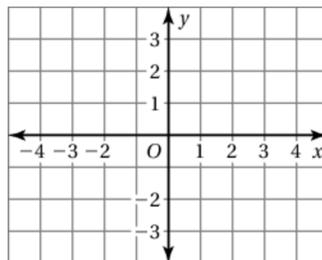
12. You want to determine if two triangles are similar. What is the minimum number of angles you need to measure to determine if the triangles are similar? Explain.

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.** the line passing through $(0, 1)$ and $(-4, 5)$
- 17.** the 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.

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

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

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

22. It costs \$0.05 to send a text message and \$0.10 to send a picture on your cell phone. You spend \$4 and send five more text messages than pictures. How many text messages x and pictures y did you send?

23. Draw a mapping diagram of the set of ordered pairs.

$(2, 3), (3, 5), (4, 1), (5, 2)$

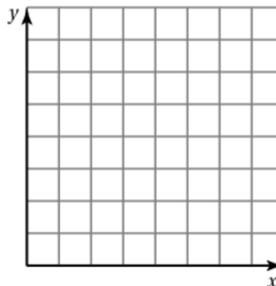
24. The table shows the cost y (in dollars) of x cold drinks.

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

a. Graph the data.

b. Write a linear function that relates y to x .

c. How much does it cost to buy three drinks?



Does the equation or table represent a *linear* or *nonlinear* function?

25. $2x - 4y = 6$

26.

x	3	7	11	15
y	2	4	8	16

Evaluate the expression.

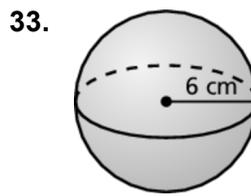
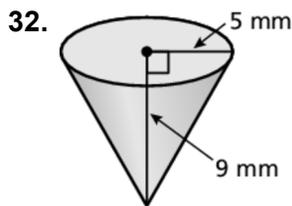
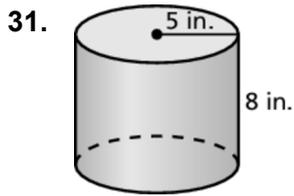
27. $-\sqrt{121} + 15$

28. $6 - 5\sqrt[3]{\frac{1}{125}}$

29. A ladder is placed against the side of a house. The top of the ladder is 12 feet above the ground. The base of the ladder is 5 feet away from the house. Find the length of the ladder.

30. Between which two integers is $\sqrt{42}$? Explain.

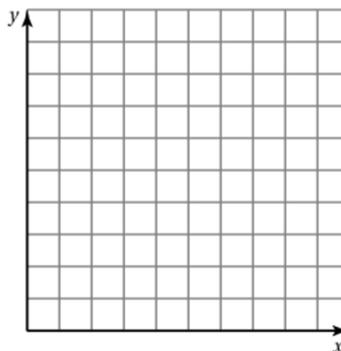
Find the volume of the solid. Round your answer to the nearest tenth.



34. The table shows the number of years of college education and hourly earnings (in dollars) for several people.

Number of Years, x	0	1	3	5	6
Hourly Earnings, y	6	8	15	25	30

- Make a scatter plot of the data.
- Draw a line of fit.
- Write an equation for the line of fit.
- Predict the hourly earnings for a person with four years of college education.



Choose an appropriate data display for the situation. Explain your reasoning.

- the percent of students with 0, 1, 2, or more than 2 siblings
- the average movie theater ticket price over the last ten years

Evaluate.

37. $(3^2)^{-1}$

38. $12^3 \cdot 12^{-4}$

39. $\frac{(-7)^6}{(-7)^4}$

Multiply. Write your answer in scientific notation.

40. $(4.6 \times 10^{-2}) \times (1.0 \times 10^{-8})$

41. $(2.5 \times 10^7) \times (1.4 \times 10^6)$