

Incoming Advanced Grade 8

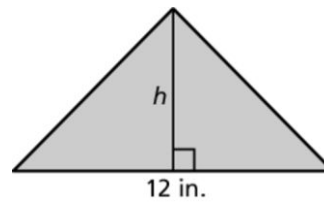
Solve.

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.



Answers

1. _____

2. _____

3. _____

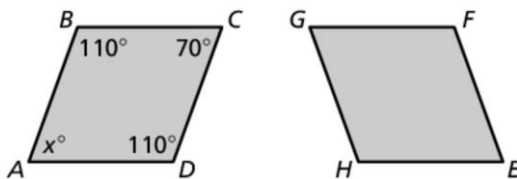
4. a. _____

b. _____

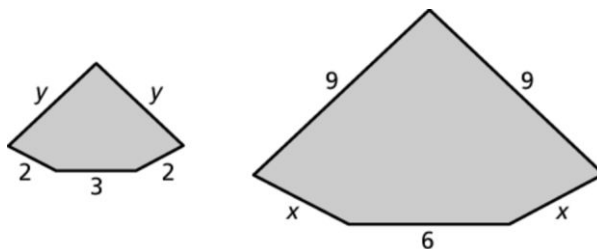
c. _____

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?

5. _____

6. _____

7. _____

8. _____

9. _____

Summer Work

Name _____

Answers _____

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

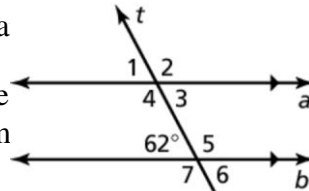
10. _____

11. Find the measure of each angle of a regular

11. _____

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

12. _____



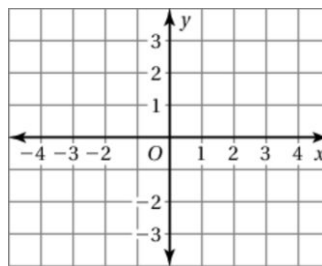
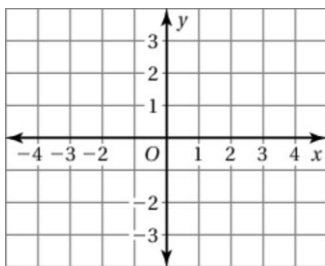
13. _____

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

13. $y = 3x - 2$

14. $2x + 4y = 6$

See left.



14. _____

See left.

15. _____

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. _____

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

17. _____

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

18. a. _____

b. _____

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 $(100, 212)$.

c. _____

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.

Summer Work

Name _____

Date _____

Solve the system.

19. $y = 3x + 4$ 20. $y - 4x = 3$ 21. $y = \frac{1}{2}x - 1$
 $y - x = 2$ $2y = 8x + 5$ $3x - y = -4$

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?

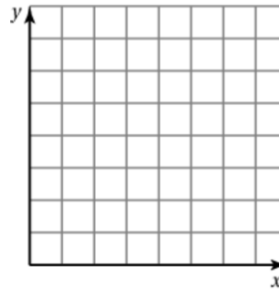
23. Draw a mapping diagram of the set of ordered pairs.

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

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.

19. _____

20. _____

21. _____

22. _____

23. See left.

24. a. See left.

b. _____

c. _____

25. _____

26. _____

27. _____

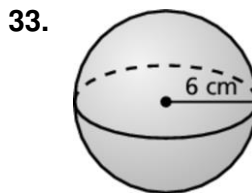
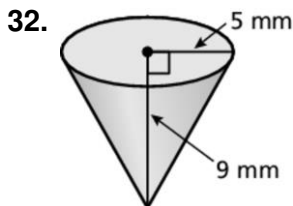
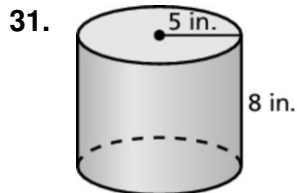
28. _____

29. _____

30. _____

Summer Work

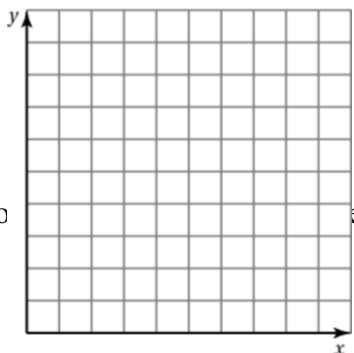
Find the volume of the solid. Round your answer to the nearest tenth.



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 4 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. $(2.5 \times 10^7) \times (1.4 \times 10^6)$

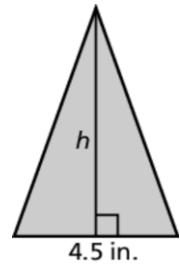
Answers

- _____
- _____
- _____
- a. See left.
b. See left.
c. _____
d. _____
- See left.
- See left.
- _____
- _____
- _____
- _____
- _____
- _____

Incoming Advanced 8

Solve.

1. $r - 3.4 = -5.8$
2. $-1 - 2c = 4$
3. One cell phone plan charges \$17.50 per month plus \$0.17 per minute used. A second cell phone plan charges \$32 per month plus \$0.07 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. Then solve for h .
 b. The area of a triangle is 14.4 square inches. Use the new formula to find the height of the triangle in inches and in centimeters.



Answers

1. _____
2. _____
3. _____
4. a. _____

 b. _____

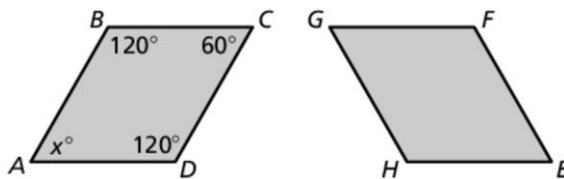
5. _____
6. _____
7. _____

8. _____

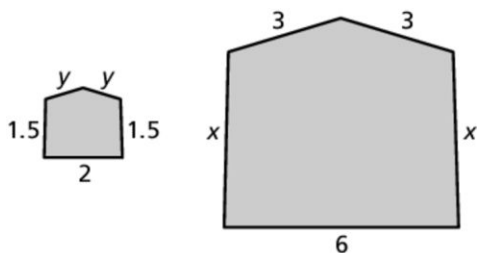
9. _____

In Exercises 5 and 6, use the following information.

Parallelograms $ABCD$ and $EFGH$ are congruent.



5. Which side of $EFGH$ is congruent to side BC ?
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 down 3 units and reflecting it in the y -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 2.75 feet by 2.25 feet. A reprint of the artwork is 22 inches by 18 inches. Are the pieces similar? If so, what is the ratio of their corresponding side lengths?

Summer Work

Name _____ **Answers** _____

10. Use the figure to find the measure of $\angle 2$.

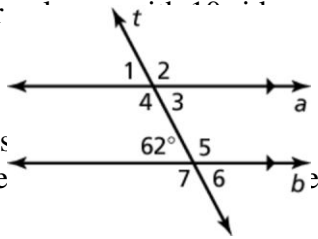
10. _____

11. Find the measure of each angle of a regular _____

11. _____

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

12. _____



13. _____

13. _____

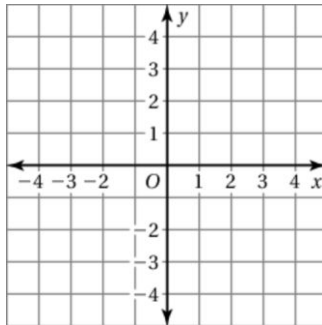
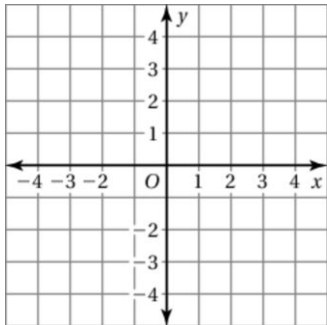
Find the slope and the y-intercept of the graph of the linear equation. Then sketch its graph.

See left.

13. $y = 1.5x + 1$

14. $3x + 5y = 1$

14. _____



See left.

15. _____

15. The equation $3.5x + 1.5y = 21$ 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.

16. _____

17. _____

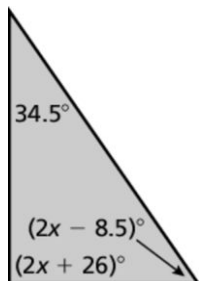
Write an equation of the line in slope-intercept form.

18. _____

16. the line passing through $(0, 2)$ and $(1, -1)$

17. the line with slope -2 and passing through $(3, 1)$

18. Find the value of x .



Summer Work

Name _____

Date _____

Solve the system.

19. $y = \frac{3}{2}x + 2$

20. $y - \frac{4}{3}x = 2.5$

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

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

$3y = 4x - 2$

$x + 2y = 2$

22. It costs \$0.07 to send a text message and \$0.12 to send a picture on your cell phone. You spend \$3.38 and send twice as many text messages as pictures. How many text messages did you send?

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

$(0, 1), (2, 5), (4, 1), (3, 2)$

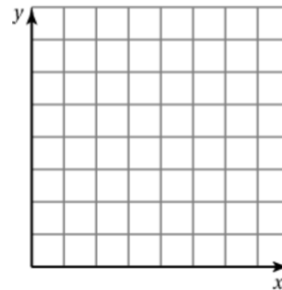
24. The table shows the cost y (in dollars) of x peaches.

Peaches, x	0	4	8	12
Cost, y	0	3	6	9

a. Graph the data.

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

c. What is the cost of six peaches?



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

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

26.

x	1.5	3.5	5.5	7.5
y	1	2	4	8

Evaluate the expression.

27. $-\sqrt{225} + 4.8$

28. $3\sqrt[3]{-343} + 8$

29. A ladder is placed against the side of a house. The top of the ladder is 24 feet above the ground. The base of the ladder is 7 feet away from the house. Find the length of the ladder.

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

19. _____

20. _____

21. _____

22. _____

23. See left.

24. a. See left.

b. _____

c. _____

25. _____

26. _____

27. _____

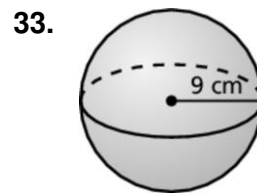
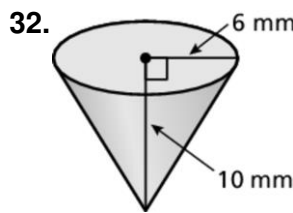
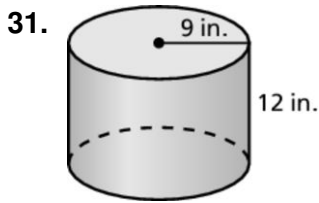
28. _____

29. _____

30. _____

Summer Work

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



31. _____
 32. _____
 33. _____
 34. a. See left.
 b. See left.
 c. _____
 d. _____
 35. See below
 36. See below
 37. _____
 38. _____
 39. _____
 40. _____
 41. _____

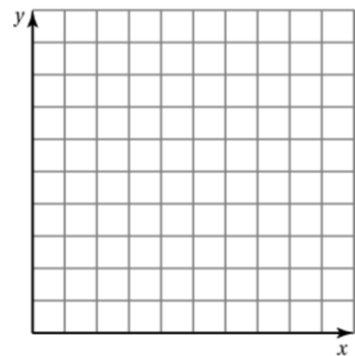
34. The table shows the number of years of college education and hourly earnings (in dollars) for several people.

Number of Years, x	0	1	3	5	6
Hourly Earnings, y	6	9	15	26	31

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

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

35. the percent of students who chose red, green, blue, yellow, or another color as their favorite color
 36. the average cost of a movie ticket over the last twenty years



Evaluate.

37. $(-3^3)^{-1}$ 38. $12^{27} \cdot 12^{-29}$ 39. $\frac{(-6)^7}{(-6)^5}$

Multiply. Write your answer in scientific notation.

40. $(4.0 \times 10^{-1}) \times (2.5 \times 10^{-4})$ 41. $(6.0 \times 10^{-5}) \times (1.5 \times 10^{-13})$

Incoming Advanced Grade 8

Tell whether the two fractions form a proportion.

1. $\frac{3}{4}, \frac{16}{20}$

2. $\frac{5}{7}, \frac{30}{42}$

3. $\frac{4}{18}, \frac{6}{27}$

4. You buy a sweater that is discounted 25%. The original price of the sweater is \$40. What is the price of the sweater after the discount?

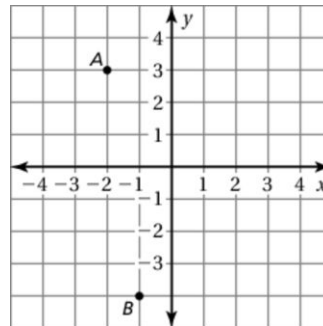
5. Find the actual distance between Lisbon and Barcelona.



Find the coordinates of the point.

6. A 7. B

Plot the ordered pair.

8. $(1, 4)$ 9. $(3, -2)$ 

Simplify the expression.

10. $-4 + 11$

11. $-7(-8)$

12. $60 \div (-4)$

13. $|-34|$

14. $| -(-41) |$

15. $12 - (-19)$

16. $\frac{4}{15} + \frac{5}{9}$

17. $-\frac{7}{8} \div \frac{3}{4}$

18. $\frac{13}{18} \cdot \frac{9}{25}$

19. $-\frac{7}{12} - \frac{1}{8}$

20. $8.37(-5.3)$

21. $0.95 - 3.49$

Answers

1. _____

2. _____

3. _____

4. _____

5. _____

6. _____

7. _____

8. **See left.**9. **See left.**

10. _____

11. _____

12. _____

13. _____

14. _____

15. _____

16. _____

17. _____

18. _____

19. _____

20. _____

21. _____

Summer Work

Solve the equation, if possible.

22. $x - 9 = -2$

23. $-4x = 32$

24. $9 - 2x = 23$

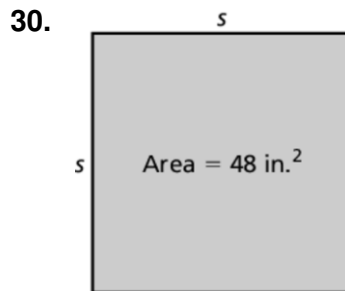
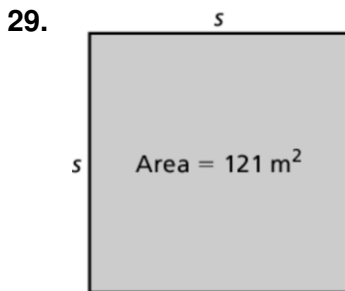
25. $x - 7 = x + 6$

26. $4x - 2 = x - 5$

27. $4x + 12 = 4(3 + x)$

28. Use the properties of equality to show that the equation $6x + 3 = 27$ is equivalent to the equation $2x = 8$.

Find the side length of the square.



Write the fraction as a decimal.

31. $\frac{3}{4}$

32. $\frac{5}{16}$

33. $\frac{21}{4}$

34. In a class, the teacher asks each person wearing red to name his or her favorite color. Is this sample representative of the entire class? Explain.

35. The data below are the test scores of the students in a math class.

97, 76, 84, 82, 90, 95, 77, 79, 80, 82, 84, 77, 100, 78, 87

Create a stem-and-leaf plot to represent the data.

36. Find the slope and y-intercept of the graph of $y = 3x - 8$.

Simplify the expression.

37. $\sqrt{25}$

38. $\sqrt[3]{-8}$

39. $\sqrt{54}$

40. $(-6)^2$

41. $(3d)^4$

42. $\frac{2^3}{2^5}$

Answers

22. _____

23. _____

24. _____

25. _____

26. _____

27. _____

28. _____

29. _____

30. _____

31. _____

32. _____

33. _____

34. _____

35. See left.

36. _____

37. _____

38. _____

39. _____

40. _____

41. _____

42. _____