

# SUMMER

Welcome to Summer Vacation! Your child has worked hard this school year to strengthen their ability as a *Mathematician*. Remember that learning does not stop outside the classroom. Daily routines and household chores can be used as activities to practice mathematical concepts and make learning fun. Having fun with math is key to helping children on their journey to become confident *mathematicians*.

Below you will find **Suggested Activities** and the **Summer Math Review Packet**. Engaging your child with some of the listed activities will help bridge their connections of mathematics to everyday life!

## Suggested Activities:

- Add and subtract items around the house. Use the terms “more than,” “less than,” “equal to,” and “is the same as” to describe the relationships between or among the items. Use multiplication and division when applicable and when grade appropriate. Ask questions such as “If you ate a total of 30 cookies, *some* in the morning and 12 in the afternoon, how many crackers did you eat in the morning?”
- Adding math language to daily conversations allows for students to connect what they’ve learned in school to their daily lives. For younger children, identify the shapes you see in the real world around you. For older students, discuss distance or gas mileage when traveling.
- Work with money. When shopping, let your child pay for items with exact amounts. Younger children can make patterns with coins and count the amount they have. For older children, calculate tips, discuss gas price comparisons and currency conversions when traveling. Provide experience with debit accounts.
- Use shopping to have conversations about math. Have younger children budget and ask them if they have enough money to pay for the item they want. Ask them to calculate how much they would have left after buying the item. Older children

can look at the unit price or price per pound and calculate the costs. Have them find the better buy for their money.

- Practice measurement at home with cooking, laundry, or discussions about household projects such as painting or working on a new floor.
- Get to know their video game interests. Chances are the level achievements in their games correlate to numeric advances.

Be creative and have fun with your child! More ideas for your child's grade level can be found at the following links:

<https://www.parent.co/how-to-help-kids-practice-using-math-in-real-life/>

<https://www.education.com/activity/>

<https://www.weareteachers.com/15-fun-ways-to-practice-math/>

<https://www.thinkthroughmath.com/math-real-life-examples/>

<http://www.parents.com/kids/education/math-and-science/playful-math-activities-for-preschoolers/>



Summer Math Review Packet is included on the following page.

Name \_\_\_\_\_

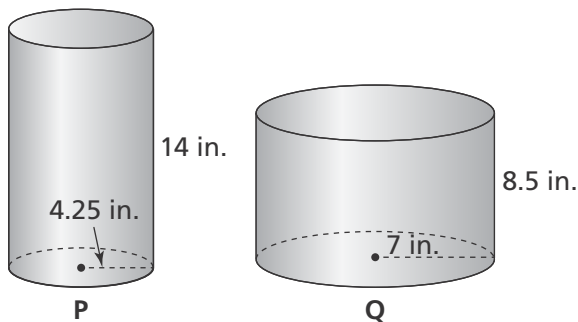
1. Simplify the expression below.

$$x^4 \cdot x^4 \cdot x^4$$

- (A)  $3x^4$
- (B)  $x^{12}$
- (C)  $3x^{12}$
- (D)  $x^{64}$

2. The library is located 1.8 miles west of Callie's house. The grocery store is located 2.4 miles south of the library. What is the length of a straight line between Callie's house and the grocery store?

3. Two cylinders are shown below. Which cylinder has the greatest volume? Use 3.14 for  $\pi$ . Round to the nearest hundredth. Explain.



4. Which of the following functions are linear?

**Function A**

|          |   |    |    |     |     |
|----------|---|----|----|-----|-----|
| <b>x</b> | 3 | 6  | 9  | 12  | 15  |
| <b>y</b> | 9 | 36 | 81 | 144 | 225 |

**Function B**

|          |   |    |    |    |    |
|----------|---|----|----|----|----|
| <b>x</b> | 5 | 10 | 15 | 20 | 25 |
| <b>y</b> | 8 | 16 | 24 | 32 | 40 |

- (A) Function A
- (B) Function B
- (C) Function A and Function B
- (D) None of the above

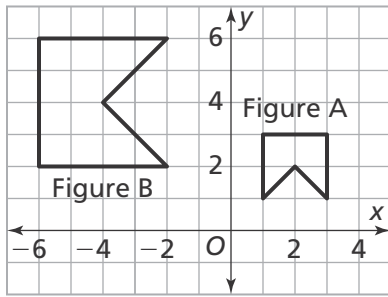
5. The results of a movie survey are represented in the two-way frequency table below.

| Way to Watch Movies | People Surveyed |        |       |
|---------------------|-----------------|--------|-------|
|                     | Male            | Female | Total |
| Stream              | 17              | 29     | 46    |
| Theater             | 33              | 21     | 54    |
| Total               | 50              | 50     | 100   |

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

- More males than females prefer to stream movies.
- More females prefer to stream movies.
- More males prefer to watch movies in a theater.
- More females prefer to watch movies in a theater.
- More people prefer to watch movies in a theater.

6. Describe a sequence of transformations that maps Figure A to Figure B.



7. The side lengths of different triangles are given. Which triangle is a right triangle?

- (A) 6, 7, 13
- (B)  $\sqrt{21}$ ,  $\sqrt{99}$ , 11
- (C) 10, 60, 61
- (D)  $\sqrt{35}$ ,  $\sqrt{14}$ , 7

8. Morgan uses  $\frac{1}{4}$  of her supply of raisins to make trail mix and  $\frac{3}{8}$  of her supply of raisins to make cookies. If Morgan uses 5 pounds of raisins, how many pounds of raisins are in her supply?

- (A) 5 pounds
- (B) 8 pounds
- (C) 12 pounds
- (D) 15 pounds

9. Jennie has 177 more songs downloaded on her mp3 player than Diamond. Together, they have 895 songs downloaded.

**Part A**

What system of equations could be used to determine how many songs each girl has downloaded?

**Part B**

How many songs does each girl have?

10. The surface area of a sphere is 200.96 square centimeters. What is the approximate volume of the sphere? Use 3.14 for  $\pi$ . Round your answer to the nearest hundredth.

- (A) 66.99 cm<sup>3</sup>
- (B) 133.97 cm<sup>3</sup>
- (C) 267.95 cm<sup>3</sup>
- (D) 334.94 cm<sup>3</sup>

11. Saturn is  $8.867 \times 10^8$  miles away from the Sun. Uranus is  $1.787 \times 10^9$  miles away from the Sun. Approximately how many times farther is Uranus from the Sun than Saturn is?

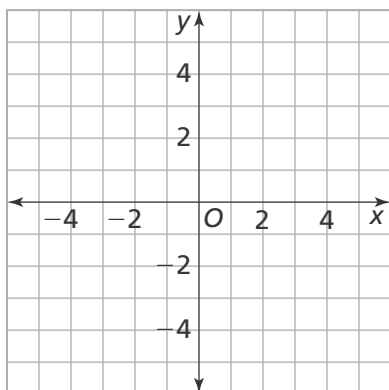
- (A) 0.2 times
- (B) 2 times
- (C) 20 times
- (D) 200 times

12. Wylie is renting a bicycle from a local shop that charges \$5 to rent a helmet, plus an hourly rate of \$8.50 for the bike. For how long can Wylie rent a bicycle if he pays a total of \$47.50?

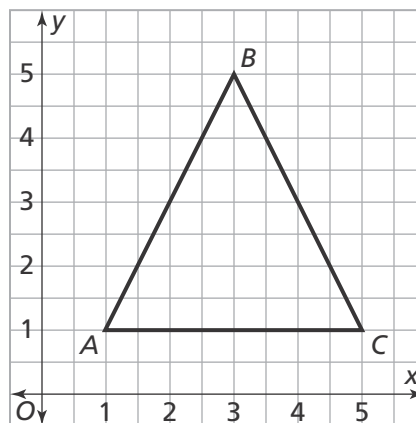
13. Graph the system of equations below and find the solution.

$$y = 2x$$

$$y = -x + 6$$



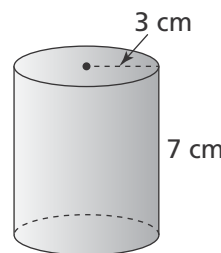

14. Zoe draws  $\triangle ABC$  on the coordinate plane.



What is the approximate perimeter of  $\triangle ABC$  to the nearest hundredth?

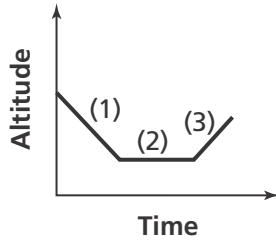
- (A) 8.47 units
- (B) 12 units
- (C) 12.94 units
- (D) 15.31 units

15. What is the approximate volume of the cylinder? Use  $\frac{22}{7}$  for  $\pi$ . Round to the nearest whole.



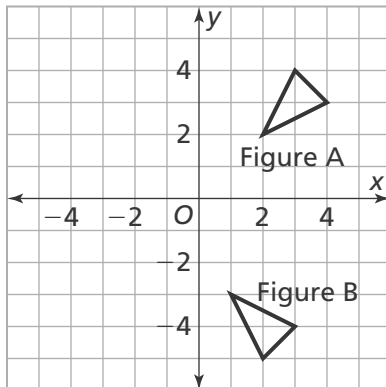
- (A)  $66 \text{ cm}^3$
- (B)  $132 \text{ cm}^3$
- (C)  $198 \text{ cm}^3$
- (D)  $264 \text{ cm}^3$

16. How would you describe the graph of the function at interval 3? Select all that apply.

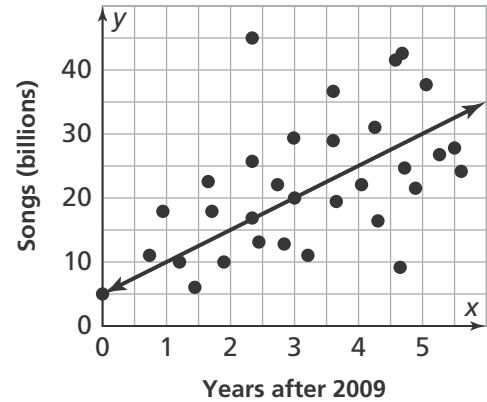


- The function is decreasing.  
 The function is increasing.  
 The function is constant.  
 The slope is negative.  
 The slope is positive.

17. What is the sequence of transformations that maps Figure A to Figure B?



18. The scatter plot shows the total number of songs downloaded on a popular music service.



What is the equation of the linear model using two points on the line?

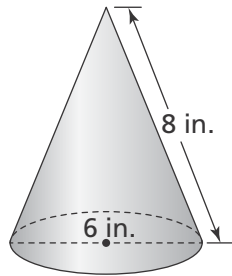
- (A)  $y = x + 10$   
 (B)  $y = 5x + 5$   
 (C)  $y = 10x + 1$   
 (D)  $y = 8x + 2$

19. A box has a base of 12 inches by 12 inches and a height of 30 inches. What is the length of the interior diagonal of the box? Round to the nearest hundredth.

20. Evaluate the expression when  $x = 4$  and  $y = 5$ .

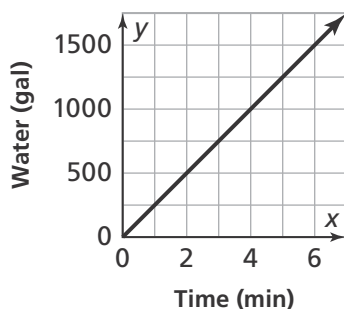
$$3x^2 + 4y^0 \cdot x^{-1}$$

21. Aubrey is making cone-shaped hats for a birthday party. She mistakenly thinks that she will need about 104 square inches of paper for each hat.



What is the correct amount of paper Aubrey will need per hat? What mistake did Aubrey likely make? Explain. Use 3.14 for  $\pi$  and round to the nearest inch.

22. The graph shows the relationship between the the amount of water that flows from a fountain and time. Write an equation to represent the amount of water that flows after  $x$  minutes.



23. Use the two-way frequency table to complete the two-way relative frequency table which shows the distribution of data with respect to all pets. Round to the nearest percent.

**Two-Way Frequency Table**

| Type of Pet | Gender |        |       |
|-------------|--------|--------|-------|
|             | Male   | Female | Total |
| Dogs        | 20     | 30     | 50    |
| Cats        | 40     | 40     | 80    |
| Total       | 60     | 70     | 130   |

**Two-Way Relative Frequency Table**

| Type of Pet | Gender |        |       |
|-------------|--------|--------|-------|
|             | Male   | Female | Total |
| Dogs        |        |        |       |
| Cats        |        |        |       |
| Total       |        |        |       |

24. Solve the system of equations below.

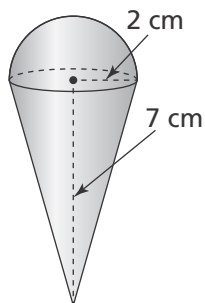
$$8a + 12b = 92$$

$$6a - 4b = 4$$

25. Carter draws one side of equilateral  $\triangle PQR$  on the coordinate plane at points  $P(-3, 2)$  and  $Q(5, 2)$ . Which ordered pair is a possible coordinate of vertex  $R$ ?

- (A)  $(-3, -6)$
- (B)  $(0, 8)$
- (C)  $(1, 8.9)$
- (D)  $(1, -8.9)$

26. What is the approximate volume of the composite figure? Use 3.14 for  $\pi$ . Round to the nearest hundredth.



- (A)  $29.31 \text{ cm}^3$
- (B)  $33.49 \text{ cm}^3$
- (C)  $46.06 \text{ cm}^3$
- (D)  $62.80 \text{ cm}^3$

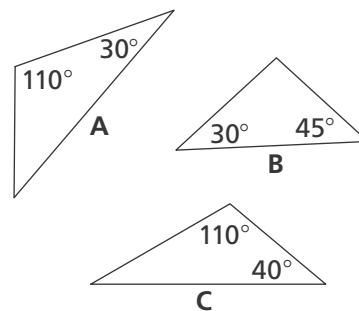
27. What is the value of  $x$ ?

$$\frac{3}{5}x - \frac{1}{3}x = x - 1$$

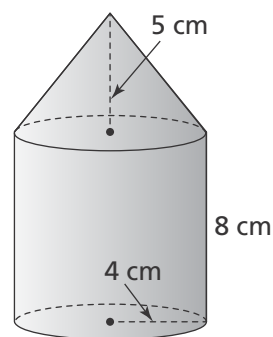
28. The graph of a function is a line that passes through the points (3, 17) and (6, 32). How would you find the rate of change for the function?

- (A)  $\frac{3 - 6}{17 - 32}$
- (B)  $\frac{6 - 3}{32 - 17}$
- (C)  $\frac{32 - 6}{17 - 3}$
- (D)  $\frac{32 - 17}{6 - 3}$

29. Which triangles are congruent?




30. Use the figure below.



**Part A**

What is the surface area of the visible portion of the composite figure? Express your answer in terms of  $\pi$ .

**Part B**

What is the volume of the composite figure? Express your answer in terms of  $\pi$ .