

Dear Rising 6<sup>th</sup> Grade Pre-Algebra Students and Families,

As we head into summer break, we want to help students keep their math skills sharp and ready for the next school year. Enclosed is a Summer Math Packet designed to review key concepts from 6th grade math. Completing this packet will help students retain what they've learned and feel more confident when they begin Pre-Algebra in the fall.

The packet includes a variety of practice problems covering important topics such as ratios and proportions, operations with fractions and decimals, expressions and equations, area and volume, and data analysis. Students are encouraged to complete a little bit each week throughout the summer to keep their math thinking active and strong.

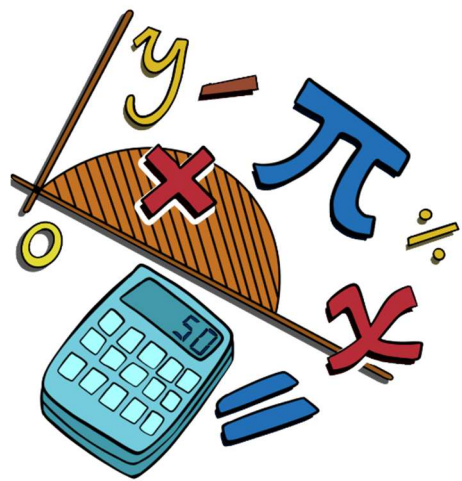
The fully completed packet is due on the first day of school and will count as a completion grade. To avoid a late penalty, it must be turned in on time. As an added incentive, strong performance on the packet will also determine how much extra credit students can receive on our first unit test.

If students come across a topic they are unsure about, we encourage them to use Khan Academy as a free and helpful resource for video tutorials and practice problems. Additionally, students are welcome to reach out to me by email at [mmcmnamenamin@sjesva.org](mailto:mmcmnamenamin@sjesva.org) over the summer if they would like guidance on where to start.

Thank you for your support in helping your child maintain their learning over the summer. We hope you have a restful and enjoyable break!

Sincerely,

Mary McMenamin



Name: \_\_\_\_\_

## Pre-Algebra 6

Date: \_\_\_\_\_ Per: \_\_\_\_\_

## Summer Packet

**SHOW ALL WORK NEEDED TO ANSWER EACH QUESTION!** Good Luck! 😊

<p>1. Which expression gives the prime factorization of 96?</p> <p>A. <math>3^2 \cdot 2^3</math></p> <p>B. <math>2^5 \cdot 3</math></p> <p>C. <math>4^2 \cdot 6</math></p> <p>D. <math>1 \cdot 96</math></p>	<p>2. The least common multiple for a pair of numbers is 12 times their greatest common factor. Which pair of numbers could this be?</p> <p>A. 18 and 24</p> <p>B. 8 and 12</p> <p>C. 12 and 20</p> <p>D. 16 and 40</p>
<p>3. Bus A picks up passengers at a bus stop every 50 minutes. Bus B picks up passengers at the same bus stop every 15 minutes. If Bus A and Bus B are both at the bus stop at 9:00 a.m., when is the next time they will be at the bus stop at the same time?</p> <p>A. 10:45 a.m.                      C. 11:30 a.m.</p> <p>B. 11:15 a.m.                      D. 11:45 a.m.</p>	<p>4. What is the quotient of <math>6\frac{3}{4}</math> and <math>\frac{5}{6}</math>?</p> <p>A. <math>5\frac{11}{12}</math></p> <p>B. <math>7\frac{7}{12}</math></p> <p>C. <math>5\frac{5}{8}</math></p> <p>D. <math>8\frac{1}{10}</math></p>
<p>5. Carl and Alana are sharing a pizza. Carl ate <math>\frac{3}{10}</math> and Alana ate <math>\frac{5}{8}</math> of the pizza. What fraction of the pizza is left?</p> <p>A. <math>\frac{3}{40}</math></p> <p>B. <math>\frac{1}{20}</math></p> <p>C. <math>\frac{1}{5}</math></p> <p>D. <math>\frac{5}{9}</math></p>	<p>6. Bella bought 1.6 pounds of sliced ham for \$8.65 per pound and 0.85 pounds of sliced swiss cheese for \$6.20 per pound. Find the total cost for the ham and cheese.</p> <p>A. \$18.43</p> <p>B. \$18.67</p> <p>C. \$18.94</p> <p>D. \$19.11</p>

7. Kelly and Vera each wrote down an integer. The absolute value of Kelly's integer is 30. The opposite of Vera's integer is -8. Which statements below must be true?

- I. Kelly's integer is positive.
- II. Kelly's integer is negative
- III. Vera's integer is positive.
- IV. Vera's integer is negative.

- A. I and IV
- B. II and III
- C. I and III
- D. III only

8. The high temperature for five days in Alaska are given in the table below. Which statement is true regarding the daily temperatures?

Mon	Tues	Weds	Thurs	Fri
$-6^{\circ}\text{ F}$	$-3^{\circ}\text{ F}$	$2^{\circ}\text{ F}$	$-8^{\circ}\text{ F}$	$-11^{\circ}\text{ F}$

- A. Wednesday < Thursday
- B. Monday < Friday
- C. Tuesday > Thursday
- D. Thursday > Monday

9. Which expression has a value that is greater than -8?

- A.  $-5 + (-6)$
- B.  $-3 - (-4)$
- C.  $2 + (-11)$
- D.  $-7 - 7$

10. The expression below represents the change to Jeremiah's bank account on a single day. Which integer represents this change?

$$4(-7) + (-15)$$

- A. -26
- B. -43
- C. 4
- D. -13

11. What is the value of the expression below?

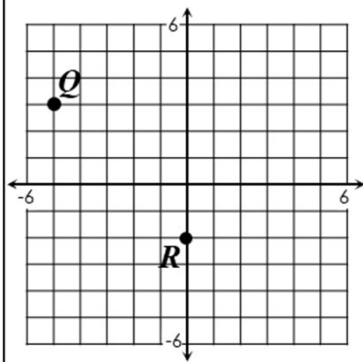
$$-18 \div (-6)$$

- A. 12
- B. -12
- C. 3
- D. -3

12. Finn and Greg are scuba diving. Finn is located at -37 feet relative to the surface of the water. If Greg is located 8 feet below Finn, which integer could represent Greg's location relative to the surface of the water?

- A. -45 feet
- B. -41 feet
- C. -29 feet
- D. -25 feet

13. Which correctly identifies the coordinates of point  $Q$  and point  $R$  on the graph below?



- A.  $Q(3, -5), R(-2, 0)$
- B.  $Q(3, -5), R(0, -2)$
- C.  $Q(-5, 3), R(-2, 0)$
- D.  $Q(-5, 3), R(0, -2)$

14. Which statement is true?

- A.  $2^6 < 6^2$
- B.  $11^2 < 5^3$
- C.  $3^4 > 10^2$
- D.  $17^2 > 7^3$

15. Which of the following values is a perfect square?

- A. 60
- B. 125
- C. 169
- D. 275

16. What is the value of the expression below?

$$10 - 4^2 + 2$$

- A. -4
- B. -8
- C. 4
- D. 2

17. What is the value of the expression below?

$$10^2 + 24 \div (12 - 2^3)$$

- A. 26
- B. 31
- C. 106
- D. 109

18. Find the value of the expression below if  $j = \frac{8}{9}$  and  $k = \frac{14}{15}$ .

$$1\frac{1}{4}j - \frac{5}{8}k$$

- A.  $\frac{19}{36}$
- B.  $\frac{7}{12}$
- C.  $\frac{13}{24}$
- D.  $\frac{11}{18}$

19. Which expression is equivalent to the expression shown below?

$$14m - 12 + 4 + 3m$$

- A.  $11m - 8$
- B.  $17m - 8$
- C.  $11m - 16$
- D.  $17m - 16$

20. Which of the expressions is not equivalent to the other three?

- A.  $7(a + 2)$
- B.  $20 + 8a - 6 - a$
- C.  $17 + 3(a - 1) + 4a$
- D.  $2a + 5(a + 1) + 8$

21. Which of the following is the factored form of  $81x - 36y$ ?

- A.  $3(27x - 12y)$
- B.  $9(9x - 4y)$
- C.  $(9 \cdot 9) \cdot x - (9 \cdot 4) \cdot y$
- D.  $9^2 \cdot x - 6^2 \cdot y$

22. Max solved the equation  $-9x = 72$ . In which of the following equations is the solution for  $y$  equivalent to Max's solution for  $x$ ?

- A.  $y - 4 = -12$
- B.  $y - 12 = 4$
- C.  $y + 4 = -12$
- D.  $y - 12 = -4$

23. What value of  $k$  makes the equation true?

$$-20 = k + (-30)$$

- A. -50
- B. 50
- C. -10
- D. 10

24. What is the solution to the equation below?

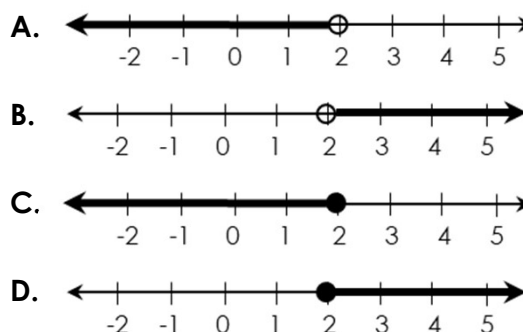
$$\frac{5}{8}m = 2\frac{1}{12}$$

- A.  $3\frac{3}{4}$
- B.  $3\frac{1}{3}$
- C.  $1\frac{5}{24}$
- D.  $1\frac{11}{12}$

25. After 8 ounces of juice are poured out from a container, there are 24 ounces left. Which equation can be used to find  $n$ , the number of ounces of juice, in the container before the ounces were poured out?

- A.  $8n = 24$
- B.  $\frac{n}{8} = 24$
- C.  $n - 8 = 24$
- D.  $n + 8 = 24$

26. Which graph could represent all numbers that are at most 2?



27. A smoothie shop combined 3 bananas and 7 cups of strawberries in a large blender to create a smoothie mix. Which ratio of bananas to cups of strawberries will create the same smoothie mix?

- A. 4:8
- B. 7:3
- C. 6:21
- D. 12:28

28. What is the sum of the two missing values in the ratio table below?

Wins	Losses
4	?
12	27
?	63

- A. 37
- B. 38
- C. 39
- D. 40

29. Which is the solution to the inequality below?

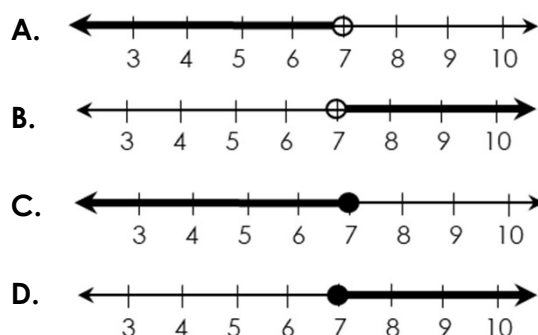
$$p - 2 \geq -10$$

- A.  $p \geq -12$
- B.  $p \geq -8$
- C.  $p \leq -5$
- D.  $p \leq 5$

30. Which inequality is true if  $k = 2.8$ ?

- A.  $4k < 11.2$
- B.  $13.083 \geq 4.9k$
- C.  $9.8 \leq 3.5k$
- D.  $7k > 20$

31. Which number line represents the solution to  $28 > 4x$ ?



32. In which inequality is -5 a possible solution for  $w$ ?

- A.  $w + 11 \geq 9$
- B.  $\frac{w}{4} \geq -2$
- C.  $-2w > 10$
- D.  $w - 3 > -7$

33. Shawn swims approximately 40 yards per minute. Yesterday, he swam 1,250 yards. If he would like to swim further today than he did yesterday, swimming at the same rate, which inequality represents the number of minutes,  $m$ , he must swim?

- A.  $m > 32$
- B.  $m > 35$
- C.  $m > 31.25$
- D.  $m > 32.5$

34. The ratio of cars to trucks on a car lot is 5:3. If there are 45 trucks, how many cars are there?

- A. 27
- B. 40
- C. 48
- D. 75

35. Alexis bought her lunch from the cafeteria 63 out of 180 school days. Which value represents the fraction of days she bought her lunch?

- A. 30%
- B. 35%
- C. 0.03
- D. 0.035

36. When 8% is written as a fraction in simplest form, which statement is true?

- A. The numerator is 4.
- B. The numerator is 8.
- C. The denominator is 25.
- D. The denominator is 5.

37. The label on a box of cereal states that it contains 6 servings. If there are 7.5 cups in the box, how many cups of cereal are there per serving?

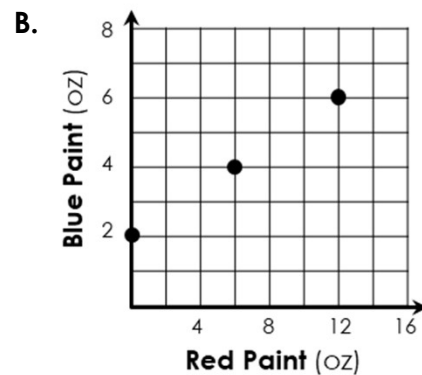
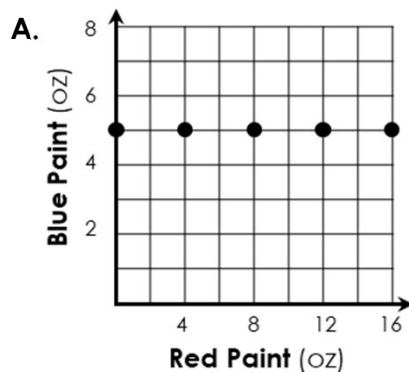
- A. 1.25
- B. 0.8
- C. 1.5
- D. 1.75

38. An aquarium is filling four empty tanks, of the same size, with water using four different hoses. The table below gives the time it takes each hose to fill a certain number of gallons. If the aquarium began filling the tanks at the same time and each tank will be filled to the same level, which tank will be filled first?

	Minutes	Gallons
Tank A	2	25
Tank B	5	64
Tank C	6	72
Tank D	8	92

- A. Tank A
- B. Tank B
- C. Tank C
- D. Tank D

39. The graphs and tables below show the relationship between ounces of red paint and ounces of blue paint. In which table or graph is the relationship proportional?



C.

Red (oz)	2	4	8
Blue (oz)	8	4	2

D.

Red (oz)	2	4	8
Blue (oz)	3	6	12

40. The lengths, in yards, of four pieces of fabric are given below. Which lists the lengths in order from shortest to longest?

Fabric 1	Fabric 2	Fabric 3	Fabric 4
2.4	$2\frac{5}{8}$	$2\frac{3}{5}$	2.195

- A. 2, 3, 4, 1
- B. 1, 4, 3, 2
- C. 4, 1, 3, 2
- D. 1, 3, 4, 2

41. Which value is less than 7%?

- A. 0.2
- B. 0.095
- C.  $\frac{3}{10}$
- D.  $\frac{1}{25}$

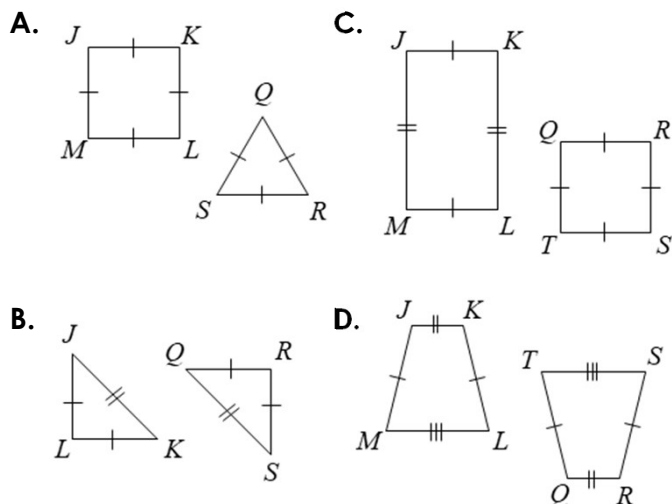
42. The battery on a laptop can last for up to 15 hours. If the battery is at 24% power, what is the maximum amount that the battery can last?

- A. 3.2 hours
- B. 3.4 hours
- C. 3.6 hours
- D. 3.8 hours

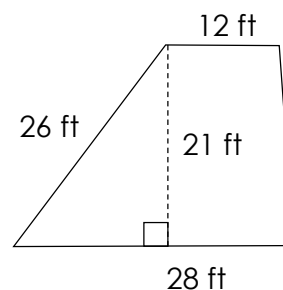
43. Which value is greater than -2.7?

- A.  $-\frac{17}{8}$
- B.  $-2\frac{3}{4}$
- C. -3.5
- D. -2.716

44. Which pair of polygons are congruent with  $\overline{JK} \cong \overline{QR}$ ?

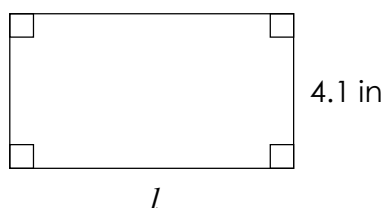


45. A driveway is in the shape of a trapezoid, with the dimensions shown below. What is the area of the driveway in square feet?



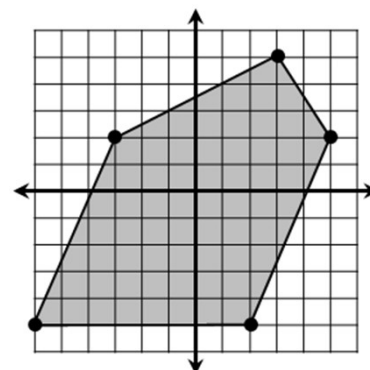
- A. 294 ft<sup>2</sup>
- B. 420 ft<sup>2</sup>
- C. 460 ft<sup>2</sup>
- D. 520 ft<sup>2</sup>

46. The area of the rectangle shown below is 30.75 square inches. What is  $l$ , the length of the rectangle?



- A. 7.2 in
- B. 7.5 in
- C. 7.8 in
- D. 8.3 in

47. What is the area of the figure graphed below?



\*  $\square$  = 1 square meter

- A. 72 m<sup>2</sup>
- B. 76 m<sup>2</sup>
- C. 65 m<sup>2</sup>
- D. 68 m<sup>2</sup>



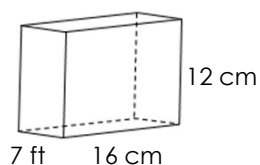
48. The tire on a tractor wheel has a radius 42.5 inches. Find the distance the tractor will travel in just one revolution of the wheel to the nearest inch.

- A. 134 inches
- B. 205 inches
- C. 234 inches
- D. 267 inches

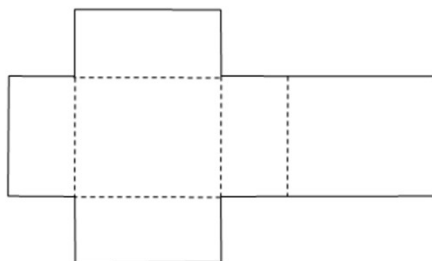
49. A circular garden has a diameter of 15 feet. What is the area of circle to the nearest square foot?

- A. 177 ft<sup>2</sup>
- B. 181 ft<sup>2</sup>
- C. 184 ft<sup>2</sup>
- D. 189 ft<sup>2</sup>

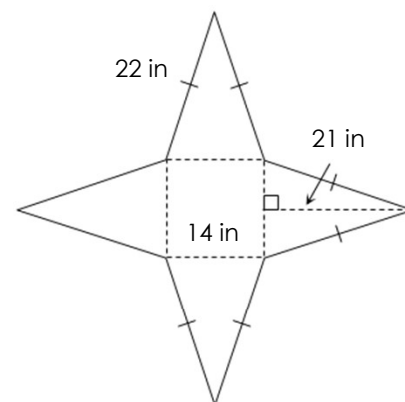
50. A rectangular prism and its net are given below. Use the net to find the surface area of the prism.



- A. 728 cm<sup>2</sup>
- B. 752 cm<sup>2</sup>
- C. 776 cm<sup>2</sup>
- D. 792 cm<sup>2</sup>

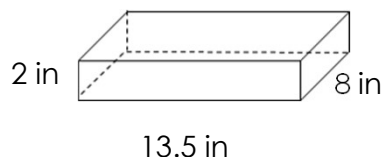


51. A square pyramid made from cardboard is needed on the set of a musical. The set crew drew a diagram of the pyramid they plan to build. What is the minimum amount of cardboard they will need?



- A. 756 in<sup>2</sup>
- B. 784 in<sup>2</sup>
- C. 812 in<sup>2</sup>
- D. 838 in<sup>2</sup>

52. A cake pan is in the shape of a rectangular prism with dimensions shown below. What is the maximum amount of cake mix that can be poured into the pan if a one-half inch gap must be left at the top to allow the cake to rise?



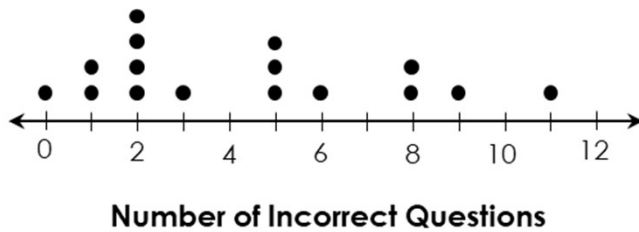
- A. 162 in<sup>3</sup>
- B. 174 in<sup>3</sup>
- C. 198 in<sup>3</sup>
- D. 216 in<sup>3</sup>

53. The table below shows the number of pages of a book that Felix read each day for 6 days. Which measure is the greatest?

Day	1	2	3	4	5	6
Pages	26	34	21	37	30	26

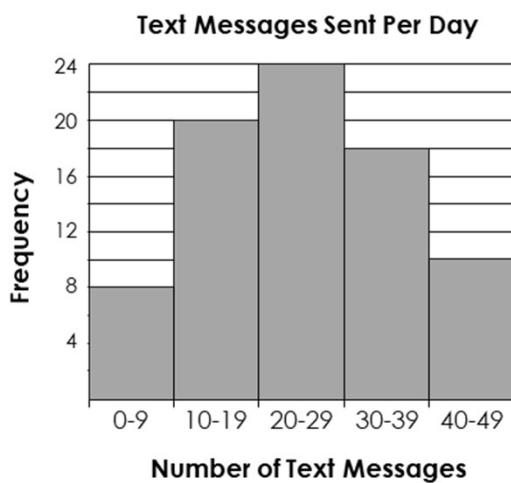
- A. Mean
- B. Median
- C. Mode
- D. Range

54. The dot plot below shows the number of questions answered incorrectly on a quiz by a group of students. What is the interquartile range?



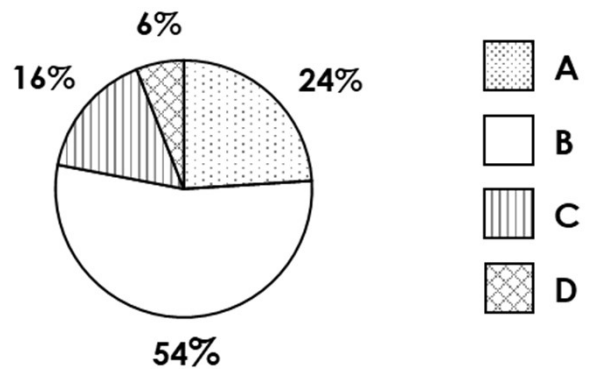
- A. 2
- B. 4
- C. 5
- D. 6

55. A group of students were asked how many text messages they each send per day. The results are shown in the histogram below. What percent of those surveyed send at least 20 text messages per day?



- A. 60%
- B. 55%
- C. 70%
- D. 65%

56. A test was given to 150 sixth grade math students. The results are shown in the circle graph. Which statement is true?



- A. 12 students earned a D
- B. 78 students earned a B
- C. 36 students earned a C or a D
- D. 117 students earned an A or a B