

2023

Summer Math Packet



Entering
Grade 8

This packet encompasses the skills you learned in 7th grade and will help ensure you are prepared to enter 8th grade in September. Make sure to read the directions for each question carefully. You **MUST** show all your work. If you do your work on another sheet of paper, make sure to attach that to the end of the packet when you hand it in to your teacher in September.

This will be your first **TEST** grade of the new school year so make sure to do your best!

Due Date: Monday, September 11th, 2023

Good luck and have a wonderful summer!

The Math Department



1. Maggie is rock climbing. After reaching the summit, she descends 14 feet in $2\frac{1}{3}$ minutes. If she continues at this rate, where will Maggie be in relation to the summit after 8 minutes?

2. Oscar rides his skateboard $\frac{5}{8}$ mile in $\frac{1}{4}$ hour. How fast, in miles per hour, does he ride his skateboard?
- (A) $\frac{5}{32}$ mile per hour
(B) $\frac{2}{5}$ mile per hour
(C) $2\frac{1}{2}$ miles per hour
(D) 3 miles per hour

3. Jorge finds that 56% of his 75 classmates like salsa music and 80% of his 60 relatives like salsa music. How many more of Jorge's relatives, as compared to his classmates, like salsa music?
- (A) 6 (C) 42
(B) 8 (D) 48

4. There are 9.5 ounces of juice in a container. An additional 1.75 ounces of juice are poured into the container each second. How many ounces of juice are in the container after 6 seconds?
- (A) 11.25 ounces
(B) 17.25 ounces
(C) 20 ounces
(D) 57 ounces

5. A game of chance has a spinner with five equal-sized sections. The results of 625 spins are shown below.

Color	Frequency
Orange	118
Purple	137
Brown	122
Yellow	106
Green	142

Part A

For which color is the experimental probability closest to the theoretical probability? Explain.

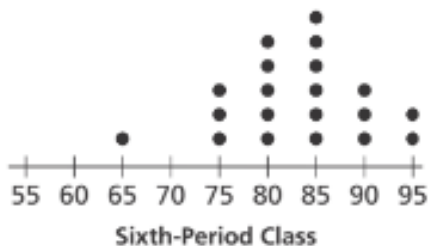
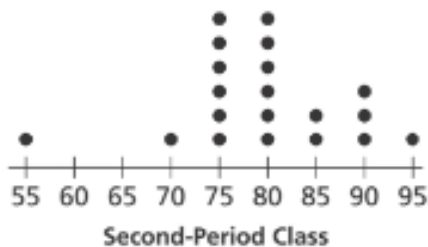
Part B

For which color is the difference between the theoretical probability and experimental probability greatest? Explain.

6. Solve the equation $5.25x + 6 = 74.25$.

- (A) $x = 12$
- (B) $x = 13$
- (C) $x = 14$
- (D) $x = 15$

7. The following dot plots describe the test scores on Mr. Santos's final exam.

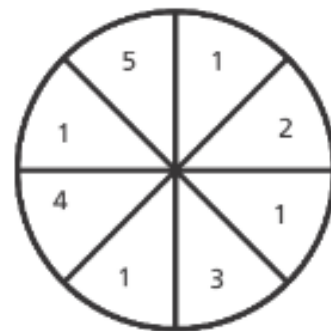


Form a valid inference based on the means of the data sets.

8. Which of the following figures could represent the cross section of a rectangular pyramid? Select all that apply.

- Circle
- Cube
- Rectangle
- Square
- Triangle

9. In a game of chance, players spin the pointer of a spinner with eight equal-sized sections.



What is the probability that the pointer will land in an odd-numbered section?

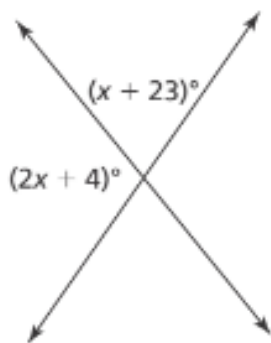
10. During the first round of a game, Silas scores 15 points. He loses 30 points during the second round and gains 10 points during his final turn. What is Silas' final score?

- (A) -55
- (B) -25
- (C) -5
- (D) 55

11. Wyatt uses 3.15 cups of flour in a recipe that makes 9 shortcakes. Cora uses 2.4 cups of flour in a recipe that makes 8 shortcakes. How much more flour per shortcake is needed for Cora's recipe?

(A) 0.05 cup
(B) 0.20 cup
(C) 0.25 cup
(D) 0.50 cup

12. Two lines are intersecting. What is the value of x ?



13. Caleb's puppy weighs 2,250 grams. If the puppy weighed 600 grams at his last visit to the veterinarian's office, what is the percent increase in the puppy's weight rounded to the nearest whole number?

14. Simplify the expression below:

$$3(7x) - 2(4 - x)$$

(A) $13 - 2x$
(B) $13 + 2x$
(C) $23x - 8$
(D) $20x - 8$

15. Of all sixth graders, 70% sent a text message yesterday. Ten trials of a simulation are conducted and the data are recorded below.

62072, 34570, 80983, 04292, 83150,
36330, 96268, 14077, 77985, 13511

The numbers 0 through 6 represent students who sent a text yesterday, and the numbers 7 through 9 represent students who did not send a text yesterday.

Based on the simulated data, what is the probability that 3 or more of a group of 5 students randomly selected will send a text today? Explain.

16. Ezra is saving money to buy a snowboard that costs \$225. He already has \$45 and can earn the rest by walking ten dogs. If d represents how much he earns for walking each dog, which of the following equations can be solved to find how much Ezra is paid for walking each dog?

- (A) $225 = 45d - 10$
(B) $225 - 45 = 10d$
(C) $25 + 45 = 10d$
(D) $45 = 225 - d$

17. Ivy randomly surveys students in her school to learn about mobile phone password use. Of 25 respondents, 14 use a password. Based on Ivy's data, how many of the 275 students in her school would be expected to use a password?

18. A probability model includes $P(\text{red}) = \frac{2}{7}$ and $P(\text{blue}) = \frac{3}{14}$. Which of the following probabilities could complete the model? Select all that apply.

- $P(\text{green}) = \frac{2}{7}, P(\text{yellow}) = \frac{2}{7}$
 $P(\text{green}) = \frac{3}{8}, P(\text{yellow}) = \frac{1}{8}$
 $P(\text{green}) = \frac{1}{4}, P(\text{yellow}) = \frac{1}{4}$
 $P(\text{green}) = \frac{5}{21}, P(\text{yellow}) = \frac{11}{21}$
 $P(\text{green}) = \frac{3}{7}, P(\text{yellow}) = \frac{1}{14}$

19. The numbers of blue and green beads Emma uses to make 5 different pieces of jewelry are recorded below.

Blue	4	8	12	16	20
Green	7	14	21	28	35

Which of the following equations relates the number of green beads, g , to the number of blue beads, b ?

- (A) $g = \frac{4}{7}b$
(B) $b = \frac{7}{4}g$
(C) $g = \frac{7}{4}b$
(D) $7g = 4b$

20. Mia agrees to borrow a 3-year loan with 4% simple interest to buy a motorcycle.

Part A

If Mia will pay a total of \$444 in interest, how much money did she initially borrow?

Part B

How much interest would Mia pay if the simple interest rate were 5%?

21. Solve the equation below.

$$3(17x - 6.5) = 108$$

- (A) $x = -1.5$
(B) $x = 2.0$
(C) $x = 2.5$
(D) $x = 5.2$
-

22. A fire hydrant with a blue cap provides water at a rate of 1,500 gallons per minute. A fire hydrant with a green cap provides water at a rate of 1,000 gallons per minute. A fire hydrant with a purple cap provides water at half the rate of a fire hydrant with a green cap.

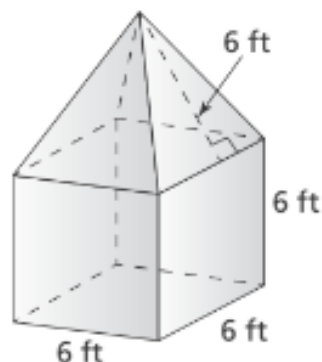
Part A

Write an equation to relate the flow of water from the blue hydrant, b , to the flow from the green hydrant, g .

Part B

Write an equation to relate the flow of water from the purple hydrant, p , to the flow from the blue hydrant, b .

23. Brooke paints the outsides of the square walls and triangular ceilings of her treehouse. What area does she paint?



24. Three boys and four girls enter a contest at the local movie theater. A randomly chosen winner will be awarded a free movie ticket, a collectible poster, or free popcorn. What is the probability that a girl will win free popcorn?

- (A) $\frac{3}{21}$
(B) $\frac{4}{21}$
(C) $\frac{3}{7}$
(D) $\frac{4}{7}$
-

25. Five of Teddy's six cousins can do 15 push-ups in one set. Which decimal is equivalent to the fraction of Teddy's cousins who can do 15 push-ups?

- (A) 0.4
(B) 0.56
(C) $0.8\bar{3}$
(D) $0.8\bar{3}$

26. Conor buys 75 tokens for games at the arcade. The price to play each game is 3 tokens. If Conor has already played x games, which expression is equivalent to the number of tokens that remain?

- (A) $3x - 75$
- (B) $3(25 - x)$
- (C) $3(25 + x)$
- (D) $75 + 3x$

27. A family drives 325 miles per day during a road trip.

Part A

Write an inequality to find how many days, d , the family must drive to travel at least 1,300 miles.

Part B

For how many days must the family drive to travel at least 1,300 miles?

28. The wheels on Jason's dirt bike measure 19 inches in diameter. How many revolutions will the wheels make when Jason rides for 500 feet? Use 3.14 for π . Round to the nearest whole revolution.

- (A) 8 revolutions
- (B) 21 revolutions
- (C) 101 revolutions
- (D) 316 revolutions

29. Ms. Alvarez wants to determine the seventh graders' preferences for the location of the end-of-year field trip. Which of the samples is representative of the population?

- (A) All students in Ms. Alvarez's fifth-period class
- (B) All students in Ms. Alvarez's advisory group
- (C) Every third student from an alphabetical list of all students in the entire school district
- (D) Every fifth student from an alphabetical list of all seventh graders in the school

30. A storage locker measures 8 feet wide, 12 feet deep, and 9 feet high. The monthly rental price for the locker is \$3.60 per cubic yard. How much does it cost to rent the locker each month? Explain.