

**5 POINTS**

1. On a certain building, the floors are numbered from 1 to 25, but there is no floor number 13. The 15th floor has only 6 apartments, while all the other floors have 8 apartments. How many apartments are there in this building?  
 A. 188      B. 190      C. 196      D. 198      E. 194

2. In a dog park, every person has one dog and every dog has one owner. The total number of feet and paws in the dog park is 402. How many dogs are there in the park?  
 A. 67      B. 57      C. 82      D. 72      E. 74

3. Find the distance from Maya to Bertha.

A. 240 m      B. 300 m      C. 600 m      D. 480 m      E. 420 m

4. Mrs. Cisternino had a giant Hershey chocolate bar. She gave each of her children one-twelfth of the chocolate bar.  $\frac{1}{3}$  of the bar was left. How many children did Mrs. Cisternino have?  
 A. 6      B. 8      C. 12      D. 15      E. 16

5. A square with a perimeter of 64 cm is cut into two equal pieces to make a rectangle as seen in the picture. What is the perimeter of the rectangle formed?

A. 64 cm      B. 48 cm      C. 96 cm      D. 84 cm      E. 80 cm

6. On a science test, Riana missed 5 out of the first 10 questions. However, she answered the remaining questions correctly. Overall, she answered 80% of the questions correctly. How many questions were there on the science test?  
 A. 80      B. 60      C. 50      D. 25      E. 20

7. Study the number line on the right. P is the average of Q and another number. What is the other number?

A. 6      B. 18      C. 11      D. 19      E. 14

8. Suppose you want to draw the shape on the left without taking your pen off the paper and without going over any line more than once. Where should you start?

A. Only at T or Q      B. Only at P      C. Only at S or R      D. At any point      E. The task is not possible

**7 POINTS**

9. If 40 percent of a number is 200, then 5 percent of the same number is \_\_\_\_\_.  
 A. 45      B. 30      C. 25      D. 10      E. 160

10. **NUMBER OF MINUTES SPENT READING**

Four students recorded the number of minutes spent reading at home for one night and recorded their data in the graph shown on the left. Based on this graph, which conclusion is true about the number of minutes spent reading?  
 A. The range is greater than the number of minutes Joey read.  
 B. Eric read fewer minutes than Mandy.  
 C. The mean is between 18 and 19.  
 D. Lisa read the same number of minutes as Eric and Joey combined.  
 E. Joey read the same number of minutes as Eric and Mandy

11. An empty rectangular aquarium measuring 30 cm by 20 cm by 8 cm is to be filled with water from a tap. If water flows from the tap at a rate of 6 liters per minute, how many seconds will it take to fill up the tank?  
 A. 480      B. 48      C. 800      D. 80      E. 8

12. The ratio of the volumes of two cubes is 8:27. What is the ratio of their surface areas?  
 A. 4:9      B. 54:24      C. 2:3      D. 24:81      E. not enough information

13. In the figure on the right, EFGH is a square, what is the area of the unshaded region?

A. 32      B. 28      C. 16      D. 18      E. 24

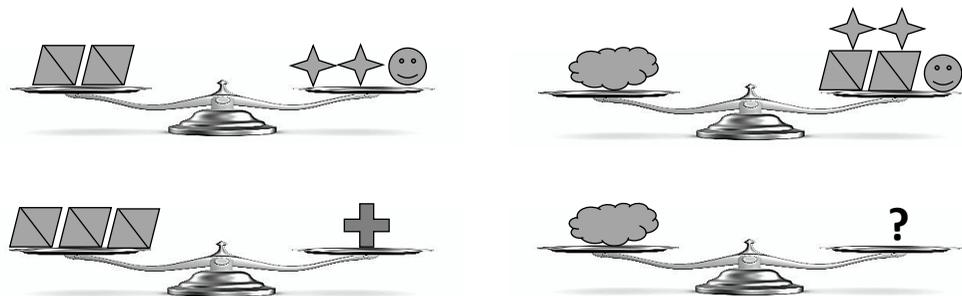
14. The letter M represents the same digit in the 4-digit number M33M. This 4-digit number is divisible by 99. What digit does the letter M represent?  
 A. 7      B. 6      C. 1      D. 9      E. 3

15. Pete can finish 20 math problems in 15 minutes. Julia can finish 45 math problems in 30 minutes. If they both have 60 minutes to work on the same math problems, how many more problems will Julia finish?  
 A. 5      B. 8      C. 9      D. 10      E. 15

**10 POINTS**

16. A box contains two quarters. One is a double-headed coin, and the other is an ordinary coin: head on one side, tail on the other. You draw one of the coins from a box and look at one of the sides. Assuming it is a head, what is the probability that the other side of the drawn coin shows a head also?
- A. Two-thirds    B. One-half    C. One-third    D. One    E. One-fourth
17. The average test score of three students in a class is 81 percentage points. If one student's score goes up by 2 percentage points, another student's score goes up by 4 percentage points, and the last student's score remains the same, what will the new average test score be?
- A. 79    B. 80    C. 81    D. 83    E. 84
18. A small cube has edge length of 2 cm. A large cubic box can fit 8 of these small cubes inside of it with no extra space. How many cubes with edge length of 1 cm could fit inside the large cubic box, leaving no extra space?
- A. 16    B. 32    C. 48    D. 64    E. 40
19. W, X, Y, and Z lie on a line in that order. The distance from W to Y is 10 and the distance from X to Z is 8. Which of the following statement must be true?
- A. XY is greater than 4.    D. XY is exactly 2  
 B. XY is less than 4.    E. Not enough information to determine any of these.  
 C. XY is exactly 4.

20.



Which answer can replace the question mark?

- A.    B.    C.    D.    E.

# MATH CHALLENGE TOURNAMENT

## FALL 2018



### Problem Solving Challenge

#### Grade 5

#### Problem 1 – 20

**Do not begin until you are instructed to do so.**

***40 minutes***

You may use scratch paper to do any calculation to reach final answers.

Mark your answers in the ANSWER SHEET.

You have 40 minutes to complete the Problem-Solving Challenge