

**5 POINTS**

1. Angie has three times as much money as Anika. If Anika has \$7, how much money do they have altogether? *Angie has \$21; Anika has \$3 x \$7 = \$21. Altogether they have \$21 + \$7 = \$28.*  
 A. \$21    **B. \$28**    C. \$27    D. \$26    E. \$29

2. What is the value of + ?  
  
*The number covered by the daisy must be 5 since 14 - 9 = 5. The number covered by the sunflower must be 4 since 1+3+ \_\_\_ = 8. Therefore, + or 4 + 5 = 9*  
 A. 5    B. 8    **C. 9**    D. 10    E. 7

3. + + = 17    + = 12    Find the value of .  
 A. 6    **B. 7**    C. 8    D. 9    E. 15

4. Donna is 7<sup>th</sup> in a line for a slice of pizza at the lunch counter. Anna is the 4<sup>th</sup> student from the end of the line. If there are 5 students lining up between Donna and Anna, how many students are there in the line including Donna and Anna? *From the first person to Donna, there are 7 students, plus 5 students in between them, plus Anna, plus 3 students behind Anna: 7+5+1+3=16.*  
**A. 16**    B. 15    C. 14    D. 17    E. 18

5. Ekaansh wrote a one-digit number then wrote an additional digit to its right. He added 16 to this number and got 62. What was the number Ekaansh wrote first? *Before he added 16, the number was 62 - 16 = 46. The first number he wrote must be 4.*   
 A. 5    B. 6    **C. 4**    D. 2    E. 3

6. Dhruv is a fan of the Seahawk. His sock drawer has only green socks and blue socks. At night, and when the light is switched off, what is the minimum number of socks that he has to remove from the drawer to make sure he has at least one matching pair of socks? *If he takes only 2, he may get 1 blue and 1 green. If he takes 3, it is possible to get 2 green (a pair) and a blue, or the other way around.*  
 A. 2    **B. 3**    C. 4    D. 5    E. Not possible

7. Five cookies cost \$3. Nina bought 15 cookies in all. How much did she pay for the cookies? *Every 5 cookies cost \$3, 10 cookies cost \$6, and 15 cookies cost \$9.*   
 A. \$13    B. \$8    C. \$15    **D. \$9**    E. \$45

8. The picture shows the pattern for the first 3 daisies. What is the number of petals needed for Daisy 5? *Daisy 1 has 8 petals, Daisy 2 has 12 petals, Daisy 3 has 16 petals, Daisy 4 has 20 petals, and Daisy 5 has 24 petals.*  
 A. 20    B. 22    **C. 24**    D. 26    E. 28

**7 POINTS**

9. How many more white rectangles Ria must paint gray so that the number of gray rectangles is exactly 3 times the number of white rectangles? *To have the number of gray rectangles 3 times the white rectangles, we must have 21 gray rectangles. 4 rectangles already painted, so we need to paint 17 more.*   
 A. 10    B. 14    C. 12    **D. 17**    E. 21

10. It is now 6:30 p.m. 10 minutes ago Lisa's mother called Lisa to eat dinner and she was in the middle of homework and would come to dinner in 20 minutes. At what time will she come to dinner?  
*Ten minutes ago was 6:20 p.m. Since she needs another 20 minutes, twenty minutes after that would be 6:40 p.m.*  
 A. 7:00 p.m.    B. 6:50 p.m.    **C. 6:40 p.m.**    D. 6:30 p.m.    E. 7:10 p.m.

11. David has 23¢ in coins. If David doubled the number of nickels he has, he would have 38¢. How many nickels does David have exactly? *Guess and check: if I have only 3 nickels, after I doubled them, I would have 8¢ + 2 x (3 x 5¢) = 38¢. Or 38-23=15 added, when nickels doubled. 15÷5 = 3 nickels at first*  
 A. 1    B. 2    **C. 3**    D. 4    E. 5

12. This week Elizabeth sold boxes of cookies to help fundraise money for her school trip. She sold boxes of cookies from Monday to Friday. On Wednesday, she sold 46 boxes of cookies. On Thursday, she sold 65 boxes of cookies, and she noticed that every day that week, the number of boxes of cookies she sold was equal to the sum of the number of boxes of cookies she sold the two previous days. How many boxes of cookies did Elizabeth sell on Monday? *On Tuesday, she sold 65-46 = 19. On Monday, she sold only 46 - 19 or 27 boxes of cookies.*  
 A. 19    **B. 27**    C. 25    D. 20    E. 29

13. Three sisters, Caitlin, Nicole, and Ashley share an apartment. They decide to pool their money together to buy a big screen TV to be placed in their living room. Caitlin chips in \$425. Nicole chips in \$245 more than Caitlin. Ashley chips in \$150 less than Nicole. How much does the big screen TV cost?  
*Nicole's part: \$425+\$245 = \$670. Ashley's part: \$670-\$150 = \$520. Total: \$425 + \$670 + \$520 = \$1615.*  
 A. \$1435    B. \$1605    **C. \$1615**    D. \$1595    E. \$1620

14. Farmer Kilstrom put a square fence around his vegetable garden to keep the deer from eating his corn. The side of the square was 10 m in length. If he installed posts to be placed 2 m apart, how many posts did he use? *Each side has 5 posts including 1 corner. There are 5x4 = 20 posts.*   
 A. 16    B. 18    **C. 20**    D. 22    E. 10

15. When you multiply Sophia's age and Sree's age, you get 36. If you add their ages together, you get 15. Sophia is older than Sree. How old is Sree? *Think of all factor pairs of 36: 1 and 36, 2 and 18, 3 and 12, 4 and 9, 6 and 6. The sum of 15 can only be made by the pair of 3 and 12.*  
 A. 2    **B. 3**    C. 4    D. 5    E. 6

**10 POINTS**

16. The area of the shapes below can be measured by counting the number of squares required to cover a figure completely, like tiles on a floor. Perimeter is the distance measured around a two-dimensional shape. Which two of the figures below have a different area but the same perimeter?

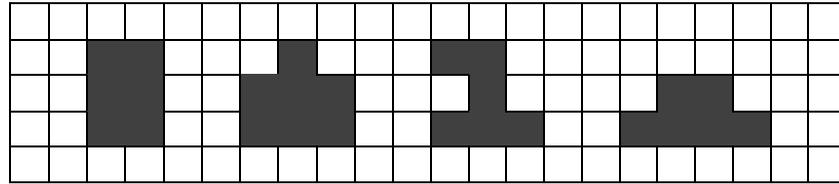
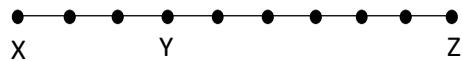


Fig. K                      Fig. L                      Fig. M                      Fig. N

Fig K Area: 6; Perimeter: 10    Fig L Area: 7; Perimeter: 12    Fig M Area: 6; Perimeter: 14    Fig N Area: 6; Perimeter: 12

- A. K and L    B. L and M    **C. L and N**    D. C and D    E. K and D

17. A line of length 4 inches is divided into nine equal segments as shown below. Find a fraction that describes the length of XY.



$XY = 4 \times \frac{3}{9} = \frac{12}{9} = \frac{4}{3}$   
 Another way: XY is  $\frac{3}{9}$  of 4 inches or  $\frac{1}{3}$  of 4 inches =  $\frac{4}{3}$ .

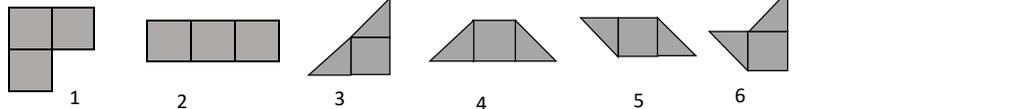
- A.  $\frac{4}{9}$  in.    B.  $\frac{3}{4}$  in.    C.  $\frac{5}{7}$  in.    D.  $\frac{2}{3}$  in.    **E.  $\frac{4}{3}$  in.**

18. Angelica adds all the numbers from 1 to 20. Benjamin adds all the numbers from 11 to 30. Taeja subtracts Angelica's answer from Benjamin's. What is the number Taeja gets?

One way: Each number by Angelica is 10 more than the corresponding number by Benjamin. So  $10 \times 20 = 200$ .

- A. 180    B. 191    C. 196    **D. 200**    E. 212

19. Which shapes below can be made by rotating and/or overlapping these two pieces? You are not allowed to flip pieces over.



- A. 1, 2, and 6    B. 2, 3, and 5    C. 3, 4, and 6    **D. 2, 5, and 6**    E. 4, 5, and 6

20.  A math competition consists of 20 questions. Each question is worth 4 or 5 points. The total maximum number of points possible is 84.

Michiko is able to solve all the 4-point questions and half of the 5-point questions. What is Michiko's score? *If all questions worth 4 points, the total would be 80 points. Since replacing 4-point by a 5-point increases the total by 1 point, there must be four 5-point questions. So Michiko must miss  $2 \times 5 = 10$ . Her score is 74.*

- A. 80    B. 79    C. 76    D. 75    **E. 74**

# MATH CHALLENGE TOURNAMENT

## FALL 2016



### Problem Solving Challenge

### Grade 3

### Problems 1-20

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

**KEY**

### *Problem Solving Challenge (40 minutes)*

Mark your answers on the ANSWER SHEET.  
 You may use scratch paper to do any calculation to reach final answers.