

5 POINTS

1. Washington State Math Council has 60 employees. At the end of this month 15% of all employees got a bonus. How many employees didn't get a bonus?
A. 9 B. 51 C. 85 D. 15 E. 57
2. Leonard's fish tank holds 480 ml when it is one-quarter empty. How much does it hold when it is one-quarter full?
A. 1440 ml B. 960 ml C. 240 ml D. 160 ml E. 120 ml
3. Trisha looks at the word **JUNIOR** in a mirror. How many of the reflected letters never look the same as the original, no matter how Trisha holds the mirror?
A. 1 B. 2 C. 3 D. 4 E. 5
4. Isabelle wrote "1" on one face of a cube, then turn to an adjacent face and wrote "2" on it, then turned again to another adjacent face and wrote "3" on it, and so on. All faces of the cube are covered by the numbers 1 through 6. What is the biggest sum of the opposite faces possible?
A. 10 B. 11 C. 7 D. 8 E. 9
5.  Raina uses 1 meter of ribbon to tie up a gift box as shown to the left. The bow uses 30 cm of ribbons. Which of the following possibly be the dimensions of the box in the form of length \times width \times height?
A. 15 cm \times 10 cm \times 5 cm B. 25 cm \times 15 cm \times 10 cm C. 20 cm \times 15 cm \times 10 cm D. 25 cm \times 12 cm \times 8 cm E. 20 cm \times 20 cm \times 5 cm
6. Ekaansh divides his secret number by 15 and gets a remainder of 11. What would be the remainder if he divides his secret number by 3?
A. Not enough information B. 1 C. 2 D. 3 E. 0
7.  There are six more girls than boys in Miss Willis's acting class of 24 students. What is the ratio of girls to boys in this class?
A. 3:5 B. 1:4 C. 3:1 D. 5:3 E. 4:1
8. Jessica is making snowballs to build a fort during the winter break. She can make 15 snowballs in 15 minutes, but 2 snowballs melt every 5 minutes. How long will it take her to make 135 snowballs?
A. 125 min B. 220 min C. 225 min D. 4 hours E. 250 min

7 POINTS

9. A wooden cube is painted red and cut into smaller $2 \times 2 \times 2$ cubes. There are seventy-two $2 \times 2 \times 2$ cubes with exactly 2 faces painted red. How many small $2 \times 2 \times 2$ cubes have exactly 1 face painted red?
A. 8 B. 216 C. 432 D. 512 E. 864
10.  Penelope had a 12:00 noon meeting that was 60 miles away from her home. She drove from her home at an average rate of 40 miles per hour and arrived 15 minutes late. At what time did Penelope leave her home for the meeting?
A. 10:35 a.m. B. 10:45 a.m. C. 10:15 a.m. D. 10:30 a.m. E. 10:20 a.m.
11. Two friends were working on a science project consisting of several subtasks of equal size. One of them finished 60% of the project plus 8 subtasks. The other finished a fifth of the project plus 7 subtasks. Together they finished the whole project. How many subtasks did the project have?
A. 75 B. 15 C. 100 D. 80 E. Not enough information
12. In a month of November, the price of Gala apples increased by 30%, and in the month of December, the price increased by 20%. What is the price increase over these 2 months from the original price?
A. 50% B. 60% C. 46% D. 56% E. 6%
13. A line segment with length 28 inches is cut into 3 unequal segments. The distance between the midpoints of the first and last segments is 16 inches. What is the length in inches of the middle segment?
A. 13 in. B. 12 in. C. 5 in. D. 4 in. E. Not enough information
14. A dining room floor with dimension of 6 yards by 5.5 yards will be renovated. Half of the room floor will be covered by rectangular laminate planks. These planks were all laid in the same direction. Each plank is 3 feet by $\frac{1}{2}$ foot. How many planks will be needed for this project?
A. 270 B. 99 C. 22 D. 198 E. 33
15. Caitlin draws two circles and two straight lines on a blank piece of paper. What is the greatest number of points of intersection that can occur on this piece of paper?
A. 6 points B. 7 points C. 9 points D. 11 points E. 12 points

10 POINTS

16. Using scientific notation, $(1.8 \times 10^{20}) - (2.0 \times 10^{18}) = a \times 10^N$, where $1 \leq a \leq 10$ and N is an integer. Find the value of a .

- A. 3.8 B. 1.78 C. 0.2 D. 1.68 E. -0.2

17. Amy, Bob and Cameron played tennis. Two players played in each game. The person who lost exchanges with the third person, who was waiting to play the next game. Amy played 12 games, Bob 7 games, Cameron 11 games. How many times did Amy win against Bob?



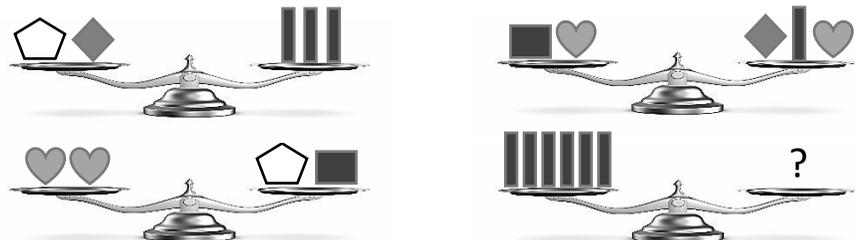
- A. 8 times B. 6 times C. 5 times D. 3 times E. 4 times

18. The distance between two boat berths is 16.8 miles. How long in hours and minutes will it take a fishing boat to go from one berth to the other and back, if the speed of the boat in still water is 11.2 mph, and the speed of a current is 25% of the boat's speed?



- A. 3 h 15 min B. 3 h 12 min C. 3 h D. 2.7 h E. 3 h 20 min

19. Which answer can replace the question mark?



- A. B. C. D. E.

20. In how many different ways can you create a number divisible by 6 that is made out of distinct digits 1, 2, 3, and 4. "Distinct digits" means you can not reuse any digit.

- A. 3 B. 5 C. 6 D. 7 E. 9

MATH CHALLENGE TOURNAMENT

FALL 2018



Problem Solving Challenge

Grade 6

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