Mission Math 3-5 grades

February 17, 2021

MCQ

1. What is the value of 500 + 60 + 8?

   (A) 500   (B) 560   (C) 568   (D) 668   (E) 1068

2. What is the value of $100 \times (1 - 3 + 4)$?

   (A) 0   (B) 100   (C) 101   (D) 200   (E) 201

3. What is the value of $10 + 5 \times 2 - 3$?

   (A) 14   (B) 17   (C) 20   (D) 27   (E) 30

4. If x is a real number whose value is strictly between 1 and 4, and y is a number who's value is strictly between 3 and 8, what is the largest possible integer value of $x + y$?

   (A) 4   (B) 10   (C) 11   (D) 12   (E) 32

5. What is the sum of the mixed numbers $1\frac{1}{2} + 2\frac{1}{2} + 3\frac{1}{2} + 4\frac{1}{2} + 5\frac{1}{2} + 6\frac{1}{2}$?

   (A) 3   (B) 6   (C) 12   (D) 24   (E) $24\frac{1}{2}$

6. Joe, John, Joseph, and Jeremy all have a different number of cents. The four of them have an average of 20 cents. If Joe has 5 cents, John has 10 cents, and Joseph has 15 cents, how many cents does Jeremy have?

    (A) 20   (B) 35   (C) 40   (D) 45   (E) 50

7. I am making a two dimensional cake with a radius of 10 inches. What is the area of my cake. Express your answer in square inches rounded to the nearest integer? (A) 10   (B) 31   (C) 100   (D) 314   (E) 315

8. Joe rolls 6 fair six-sided die, each with the numbers 1 through 6. What is probability that the product of the numbers on the top faces is 23?

    (A) 0   (B) $\frac{1}{4}$ (C) $\frac{1}{2}$ (D) 24   (E) 1

9. Markrus won 3/5 of his chess games and only wins and loses. If he lost 20 games, how many games did he win?

    (A) 10   (B) 12   (C) 20   (D) 30   (E) 50

10. If 25% of 220 is 5.5% of x, then what is the value of x?

    (A) 55   (B) 100   (C) 550   (D) 1000   (E) 10000

11. Sammy the Snail climbs 3 inches up a stick every morning and slides down 2 inches every night. If Sammy starts at the bottom of the stick the first night and the stick is 5 inches long, how many days will it take for Sammy to reach the top of the stick?

    (A) 1   (B) 2   (C) 3   (D) 4   (E) 5

12. Let $X \delta Y = X^2 + Y$. What is the value of $(4 \delta 6) + (2 \delta 3)$?

    (A) 21   (B) 27   (C) 29   (D) 51   (E) 65

13. At a dance, everyone has a date except for Bob. Cars arrive with either 4 or 8 people. Bob is the only person who walked (and no one else arrived another way). Which of the following could be the number of people at the dance?

    (A) 22   (B) 23   (C) 24   (D) 25   (E) 26

14. Eva spent $33 on 3 dresses and 2 pairs of socks. Each dress cost $8.50 more than one pair of socks. What was the cost of each dress?

    (A) $8.50   (B) $9   (C) $10   (D) $15   (E) $17

15. The repeating decimal 0.20202020... can be expressed in the form $\frac{a}{b}$, where a and b are relatively prime integers. What is the value of $a + b$?

    (A) 118   (B) 119   (C) 120   (D) 121   (E) 122

16. Dana drives 21 miles south and x miles east from a shop to her house. If she could just drive straight from the shop to her house, it would be 35 miles. What is x?

    (A) 14   (B) 21   (C) 24   (D) 28   (E) 35

17. I roll two fair 6-sided dice. What is the probability that the numbers add to 10?

    (A) $\frac{1}{12}$ (B) $\frac{1}{11}$ (C) $\frac{1}{6}$ (D) $\frac{1}{2}$ (E) 1

18. I draw a square, and then I draw a semicircle on top of that square, with the diameter of the semicircle as the side length of the square. What is the ratio of the area of the semicircle to the area of the square?

    (A) $\pi : 1$ (B) $\pi : 2$ (C) $\pi : 4$ (D) $\pi : 8$ (E) $\pi : 16$

19. There are 10 seats in a row in a theater, and 5 people need to be seated. Because of a virus, exactly one seat needs to be left unoccupied in between each person. How many different ways are there to seat the people?

    (A) 240   (B) 480   (C) 600   (D) 720   (E) 840

20. There is a socially distanced party with 15 people. Each person waves at each other person, so Hiram waves at Henry and Henry waves at Hiram, which is two waves. If everyone waves at everyone, how many waves occurred?

    (A) 105   (B) 120   (C) 150   (D) 200   (E) 210

Free Response

1. I am thinking of a positive integer. The sum of its digits is 20. The number is also divisible by 5. What is the smallest possible value of my number?

2. If the average hamburger is 5 inches long, and the average hot dog is $\frac{12}{5}$ times as long as a hamburger, how many inches long is the average hot dog?

3. I have a jar of jelly beans that weighs 56 ounces. If I add 16 ounces worth of jelly beans to the jar, and then divide the jelly beans evenly into bags that each weigh 8 ounces, how many bags do I have?

4. In the arithmetic sequence of numbers: 5, x, 21, 29, 37, 45, what number does x represent?

5. Ian and Greg are reading the same book on the same day. Ian starts reading at 11:30 AM while Greg starts at 3 PM. Ian reads 20 pages per hour while Greg reads 30 pages every half hour. At what time will they be reading the same page?

6. Ellie has a bouquet of flowers. One fourth of the flowers are pink, 30% of them are purple, and one fifth of them are blue. If the remaining flowers are all white and she has 5 white flowers, how many flowers are in her bouquet?

7. Annie flips three fair coins. What is the probability that at least two of them land on heads? Express your answer as a percentage.

8. Eliza is thinking of a number. She tells you that if you divide her number by 8 and subtract 5, you end up with 10% of the original number. What is Eliza's number?

9. A farmer wants to fence off a rectangular area of 100 square feet. If she uses as little fencing as possible, how many feet of fencing does she need?

10. What is the volume of a right circular cone with a height of 4 inches and a base that has a radius of 3 inches? Your answer will be $a\pi$, find a.

1   Answers

1. C
2. D
3. B
4. C
5. D
6. E
7. D
8. A
9. D
10. D
11. C
12. C
13. D
14. C
15. B
16. D
17. A
18. D
19. D
20. E

1. 695
2. 12 inches
3. 9 bags
4. 13
5. 4:45
6. 20 flowers
7. 50%

8. 200

9. 40 feet

10. 12