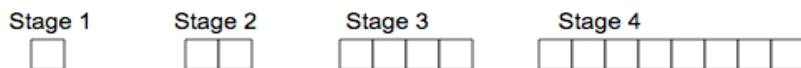


MONTANA COUNCIL OF TEACHERS OF MATHEMATICS
2019 MATH CONTEST
POTLUCK

DIRECTIONS: DO NOT WRITE ON THIS TEST. Place the best answer for each question on the separate answer sheet.

1. A cube has a volume of 27. When each edge length is tripled, what is the volume of the new cube?
A) 9 B) 81 C) 729 D) 2187 E) none of these
2. A marble jar contains 30 marbles: 10 are red, 8 are green, 6 are blue, and 6 are yellow. Two marbles are picked at random and left out of the jar. If both are blue, what is the probability that the next marble, picked at random, is also blue?
A) $\frac{1}{6}$ B) $\frac{1}{7}$ C) $\frac{1}{8}$ D) $\frac{1}{9}$ E) none of these
3. In the sequence: 6,7,10,15,22,31 a certain pattern determines each number that follows. What is the next number in the sequence?
A) 39 B) 40 C) 41 D) 42 E) none of these
4. Kerry has a hoverboard with a wheel that has a diameter of 6.5 inches, how many rotations does the wheel make to travel 5 feet? Round your answer to the nearest whole number.
A) 1 B) 2 C) 3 D) 4 E) none of these
5. What is the slope of a line that passes through the points (-1, 2) and (1, 2)
A) 0 B) 1 C) 2 D) undefined E) none of these
6. If a right triangle has a base length of 3 and an area of 6, what is the perimeter of the triangle?
A) 5 B) 12 C) 20 D) 60 E) none of these

Use the following image for questions 7-9:



7. How many blocks will there be in stage 5?
A) 12 B) 14 C) 15 D) 16 E) none of these
8. How many blocks would there be in stage 0?
A) 0 B) $\frac{1}{8}$ C) $\frac{1}{4}$ D) $\frac{1}{2}$ E) none of these
9. Write an equation to represent the pattern.
A) $y = \frac{1}{2}x^2$ B) $y = \frac{1}{2} \cdot 2^x$ C) $y = 2^x$ D) $y = 2x$ E) none of these
10. Solve for x: $2x-3y=10$
A) $\frac{10-3y}{2}$ B) $\frac{10+3y}{2}$ C) $\frac{-10-3y}{2}$ D) $\frac{-10+3y}{2}$ E) none of these

POTLUCK 2019 page 2

11. Mt. Everest, the highest elevation in Asia, is 29,028 feet above sea level. The Dead Sea, the lowest elevation, is 1,312 feet below sea level. What is the difference between these two elevations?

- A) 22,125 B) 23 C) 27,716 D) 30,340 E) none of these

12. If two points on the coordinate plane are (-1, 7) and (-1, -1), and are translated 4 units left and one unit up, what are the new coordinates?

- A) (3,8)(3,0) B) (-5,6)(-6,-2) C) (-5,8)(-5,0) D) (0,3)(0,-5) E) none of these

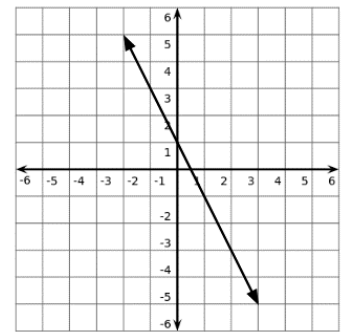
13. What is the x-intercept of $3x + 4y = -24$

- A) -8 B) -6 C) 3 D) 4 E) none of these

14. At what point do the lines $y = 3x - 4$ and $x - y = 6$ intersect?

- A) (2,3) B) (-2,3) C) (-2.5, 3.5) D) (-2.5,-3.5) E) none of these

Use the graph to the right for questions 15-16:



15. What is the x-intercept?

- A) 0.5 B) 1 C) 2 D) 4 E) none of these

16. What is the rate of change?

- A) -2 B) -1 C) 1 D) 2 E) none of these

17. John is sketching a building for his client at his architecture firm. The scale is $\frac{1}{2}$ inch for every 30 feet. If the lobby has a width of 50 feet, what is the drawing's width in inches?

- A) $\frac{1}{4}$ B) $\frac{3}{4}$ C) $\frac{5}{6}$ D) $\frac{6}{7}$ E) none of these

18. In Bermuda the temperature is 35°C . Use the formula $F = \frac{9}{5}C + 32$ to find the temperature in Fahrenheit.

- A) 90°F B) 95°F C) 100°F D) 105°F E) none of these

19. Jenny has \$500 in her savings account and spends \$25 every week. Billy has \$50 in his savings account and saves \$50 every week. At what week will they have the same amount of money?

- A) 3 B) 4 C) 5 D) 6 E) none of these

20. If $\frac{1}{6}$ of a number is 5. What is $\frac{1}{5}$ of the number?

- A) 1 B) 5 C) 6 D) 30 E) none of these

21. If point Z(-1, -3) is reflected across the line $y = x$ what are the new coordinates?

- A) (-3, -1) B) (3, 1) C) (-3, 1) D) (1,3) E) none of these

POTLUCK 2019 Answer Key

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