

Multiple Choice

1. Parker the painter is painting a 10 foot by 15 foot wall. If a bucket of yellow paint can cover at most 30 square feet, at least how many buckets of paint will Parker need to paint the whole wall yellow?
(a) 6 (b) 5 (c) 7 (d) 8 (e) 4
2. If March 12, 2020 is a Thursday, what day of the week will it be on March 12, 2021?
(a) Monday (b) Wednesday (c) Thursday (d) Sunday (e) Friday
3. Ariel, Belle, Cindy, Daisy, and Esmey are sitting in five chairs numbered from left to right from chair 1 to chair 5. Ariel sits in chair 2. Cindy does not sit next to Ariel. Belle's chair is labeled with an even number. If Daisy is not sitting on either end of the row, which chair is Esmey sitting in?
(a) 1 (b) 2 (c) 3 (d) 4 (e) 5
4. Two years ago, Adam was nine times as old as Norah. He is now seven times as old as she is. How many years from now will Adam be five times as old as Norah?
(a) 7 (b) 6 (c) 4 (d) 5 (e) 2
5. I am three years younger than twice what my age was six years ago. What is my age now?
(a) 14 (b) 3 (c) 20 (d) 13 (e) 15
6. In a coordinate system four of the following points are the vertices of a square. Which point is not vertex of the square
(a) (-1,1) (b) (-1,-1) (c) (1,1) (d) (1,-1) (e) (0,-1)
7. It costs 12 dollars to buy 8 tid-bits. How much does it cost to buy 12 tid-bits?
(a) 18 dollars (b) 8 dollars (c) 12 dollars (d) 15 dollars (e) 16 dollars
8. if $2020/n$ is an integer and n is an integer, what is the maximum value of $n - n^2$?
(a) 4 (b) 1 (c) 3 (d) 0 (e) -2
9. If x is 7% of 200, what is x ?
(a) 17 (b) 7 (c) 3.5 (d) 28 (e) 14
10. Tina wants to read her 119-paged Greek mythology book over the summer. She decides to read 20 pages a day, and starts on Monday. What day will she finish reading her book?
(a) Monday (b) Saturday (c) Friday (d) Sunday (e) Tuesday

11. Bob flips 3 coins. What is the chance that they all land on tails?
(a) $\frac{1}{6}$ (b) $\frac{1}{8}$ (c) $\frac{1}{3}$ (d) $\frac{3}{8}$ (e) $\frac{1}{2}$
12. What is the hypotenuse of a right triangle with sides 7 and 24?
(a) 30 (b) 24 (c) 25 (d) 31 (e) 19
13. Calder and Ryan sit in a row of 7 chairs. They choose their seats at random. What is the probability that they don't sit next to each other?
(a) $\frac{3}{7}$ (b) $\frac{2}{7}$ (c) $\frac{1}{2}$ (d) $\frac{1}{3}$ (e) $\frac{5}{7}$
14. I have 20! pieces of gold in my treasure chest. A pirate comes and steals half of my gold. Then the pirate's matey comes and steals $\frac{2}{3}$ of what's left. A third pirate comes and steals $\frac{3}{4}$ of what's left after that. This process continues until seventeen swashbucklers have had a share of my treasure. How many peices of gold do I have left?
(a) 380 (b) 20 (c) 5 (d) 0 (e) 1760
15. A full glass of water weighs 700 grams. A glass $\frac{1}{3}$ full of water weighs 320 grams. How much does an empty glass weigh?
(a) 130 (b) 190 (c) 260 (d) 150 (e) 100
16. What is the units digits of of $5690 \times 6543 \times 12345$?
(a) 0 (b) 5 (c) 3 (d) 1 (e) 7
17. Selena has an ice cream cone that is in the shape of a regular right circular cone. The height of the cone is 12 cm, and the base of the cone has a radius of 3 cm. What is the volume of Selena's cone?
(a) 108π (b) 36π (c) 12π (d) 32π (e) 72π
18. If two numbers multiplied together is 720, and their greatest common factor is 6, what is their least common multiple?
(a) 30 (b) 720 (c) 120 (d) 6 (e) 5040
19. Adam's family has 7 children. 5 of his children like to play the piano. 3 of his children like to swim. 3 of his children like to play video games. None of his children like to do all three, and all like to do at least one thing. if exactly two of them like to play video games and the piano, how many children only like to swim?
(a) 1 (b) 0 (c) 2 (d) 3 (e) 7
20. How many diagonals of a regular octagon are not parallel to one of the sides?
(a) 10 (b) 12 (c) 8 (d) 9 (e) 11

Free Response

1. 80 workers can paint $20m^2$ in three days. How many workers are needed to paint $50m^2$ in five days?
2. The area of a circle is 49π . What is the radius of the circle?
3. $\frac{1}{4}\%$ expressed as a decimal is
4. A student wrote down a natural number. When that number was divided by 7, the remainder was 5. What is the remainder when triple the number is divided by 7?
5. A one pound of mixed fruit costs 1.20 dollars. How much would 2.5 pounds of this fruit cost?
6. Barbara opens a book at random and notices that the product of two pages facing each other is 1260. The sum of the two numbers are 71. What is the higher page number?
7. The year 1771 is a Palindrome, what is the product of the digits of the next year after 1771 that is a palindrome?
8. A bag contains 14 marbles; 6 are white, 6 are blue, and 2 are red. If I draw two (and do not put the first marble drawn back into the bag before I draw the second marble), then what is the probability that both marbles drawn are red?
9. A cube has two faces painted red, two faces painted blue, and two faces painted white. The two red faces share an edge. The two blue faces do not share an edge. If the top face of the cube is white, what color is the bottom?
10. An equilateral triangle has the same perimeter as a regular pentagon. What is the ratio of the side length of the triangle to the side length of the pentagon?