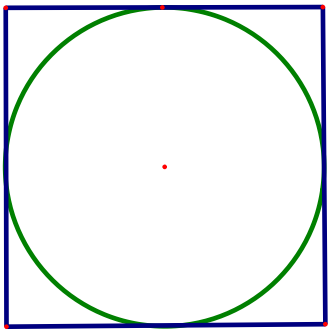
2016 6th Grade Test

1. Mindi and Demarco are go-kart racing. Mindi's go-kart can go 25 mph, but must stop to fuel up every 10 miles, which takes 2 minutes per fueling. Demarco's go-kart is a hybrid and goes 20 mph, but never needs to be refueled. They are going to do a 15 mile race and a 20 mile race, who will win each race?
   A. Mindi will win both races.
   B. Demarco will win both races.
   C. Mindi will win the 15-mile race, but Demarco will win the 20-mile race.
   D. Demarco will win the 15-mile race, but Mindi will win the 20-mile race.
   E. There is not enough information to tell who wins the races.
2. In Neverland, the units of measure for volume are goog, blob, and mog. If there are 7 googs in 5 blobs, and 8 blobs in 5 mogs, how many mogs are there in 3 googs?
   A. $\frac{7}{8}$
   B. $\frac{8}{7}$
   C. $\frac{24}{7}$
   D. $\frac{75}{56}$
   E. $\frac{128}{25}$
3. Of the following choices, which is the largest product you can get by multiplying together several whole numbers with a sum of 15?
   A. 56
   B. 60
   C. 96
   D. 125
   E. 144
4. A toy store sells 4 types of toy cars, all which cost different amounts. One blue car costs as much as three red cars. Two purple cars cost as much as five black cars. Two red cars cost the same as 10 black cars. One purple car costs $1.10. How much do eight blue cars cost?
   A. $4.40
   B. $6.60
   C. $14.70
   D. $52.80
   E. $105.60
5. A set of 5 different positive integers has a mean of 18 and a median of 20. What is the largest possible value for a number in this set?
   A. 33
   B. 34
   C. 46
   D. 67
   E. 68

6. Assume *n* is a natural number. Which is greater? $\frac{n}{n+2}$ or $\frac{n+1}{n+3}$
   A. $\frac{n}{n+2}$ is always greater.
   B. $\frac{n+1}{n+3}$ is always greater.
   C. They are equivalent.
   D. Sometimes they are equivalent, and sometimes $\frac{n+1}{n+3}$ will be greater.
   E. It is impossible to tell which will be greater.
7. Bob started saving money. First he counted how much money he could find lying around the house, including what he got for his birthday. Next, he started saving the same amount of money every week. After six weeks, he had $40.12 total. After 13 weeks, he had $80.16. How much money did he have from his birthday and from what he found lying around the house?
   A. $0.08
   B. $5.76
   C. $5.80
   D. $12.19
   E. $34.32
8. On Saturday, Jessica takes 5 selfies. On Sunday, she takes 5 more selfies than she did on Saturday. On each of the next 5 days, she takes 5 more selfies than she did the previous day. How many selfies did she take in all?
   A. 35
   B. 40
   C. 140
   D. 180
   E. 5^{28}
9. Dillon, Liam, and Willow are weeding a garden. Willow's part is one-fourth the size of Liam's part. Liam's part is one-fifth the size of Dillon's part. What fraction of the garden will Dillon weed?
   A. $\frac{4}{5}$
   B. $\frac{2}{3}$
   C. $\frac{1}{20}$
   D. $\frac{19}{20}$
   E. $\frac{3}{5}$
10. If *x*% of 130 is between 200 and 250, then what must be true?
   A. $0 \leq x \leq 50$
   B. $50 \leq x \leq 100$
   C. $100 \leq x \leq 150$
   D. $150 \leq x \leq 200$
   E. It is impossible to tell the value of *x*.

11. Michaela went to the store and bought 3 oranges and two gallons of milk for $6.95. She went back the next day and bought 5 oranges and one gallon of milk for $5.05. Assuming the prices of the items did not change between days, how much is a gallon of milk?
    A. $0.45
    B. $0.90
    C. $1.40
    D. $2.80
    E. $3.15
12. If 2 gips = 9 blogs, 4 blogs = 5 arks, and 1 ark = 12 canties, which list below gives the items from least to greatest value?
    A. Canties, arks, gips, and blogs
    B. Canties, arks, blogs, and gips
    C. Gips, blogs, canties, and arks
    D. Blogs, canties, gips, and arks
    E. Gips, blogs, arks, and canties
13. How many perfect squares exist that are less than 300, not including 0?
    A. 16
    B. 17
    C. 18
    D. 20
    E. 150
14. When 12 cubic feet of water is poured into an empty fish tank that is a rectangular prism, the tank is two-thirds full. The length of the tank is 36 inches and the width of the tank is 30 inches. What is the approximate height of the tank?
    A. 14 inches
    B. 24 inches
    C. 24.4 inches
    D. 28.8 inches
    E. 29 inches
15. Elliot and his family are driving to visit family for summer break. The trip is 150 miles one way. They drive an average of 68 mph on the way there. But hit traffic and drive an average of only 62 mph on the way home. What was their average speed for the entire round trip? (Round to the nearest tenth).
    A. 63.0 mph
    B. 64.9 mph
    C. 65 mph
    D. 65.8 mph
    E. 67 mph

16. A message in a bottle is dropped from a boat and begins floating in the ocean 3 miles from shore. It is traveling further away from the shore at a constant rate. After 5 hours, it is 23 miles from shore. An island is in the path of the bottle, 211 miles from shore. How long from the time it was dropped into the ocean, will it take the bottle to reach the island?
    A. 52 hours
    B. 60 hours
    C. 65 hours
    D. 125 hours
    E. 208 hours
17. The area of the square below is 256 square meters. What is the circumference of the circle?



    A. 8π meters
    B. 16π meters
    C. 64 meters
    D. 64π meters
    E. 256π meters
18. Sia missed a day of school and had to make up a test the next day. The class's mean score on the exam without her score included was a 75%. Sia made an 81%. What is the least amount of additional information is needed to calculate the new class mean?
    A. No additional information is needed; the new average is 78%.
    B. The median needs to be given.
    C. The original scores of all other classmates are needed.
    D. The range is needed.
    E. The number of students included in the original mean is needed.

19. Two fair, six-sided dice are rolled at the same time. What is the probability that the product of the two numbers rolled will be prime or odd?
    A. $\frac{2}{9}$
    B. $\frac{2}{8}$
    C. $\frac{1}{2}$
    D. $\frac{5}{18}$
    E. $\frac{3}{4}$
20. John is participating in a triathlon. He swims at a rate of 2 mph and runs at a rate of 6 mph. The course is broken down in the following manner: Leg 1- Swim 6 miles, Leg 2- Run 15 miles, Leg 3- Bike 18 miles. How fast will John have to bike to finish the triathlon in exactly 7 hours?
    A. 4 mph
    B. 9 mph
    C. 12 mph
    D. 18 mph
    E. 27 mph
21. If the pattern below continues, what will be the 100th term in the pattern?
    4, -4, -12, -20, …
    A. -788
    B. -780
    C. -796
    D. -800
    E. -808
22. If $\frac{3}{4}$ is $\frac{5}{6}$ of $\frac{6}{7}$ of a certain number, what is that number?
    A. 0.25
    B. $\frac{90}{168}$
    C. 1
    D. 1.05
    E. 2
23. If the following measurements were placed in the blanks below in order from least to greatest, which measurement would be in the fourth blank from the left, that is, the middle?
    1.25 m, 23 dm, 0.005 km, 1 yd, 2450 mm, 3 cm, 1 in
    ____ , _____ , _____ , _____ , _____ , _____ , _____
    A. 0.005 km
    B. 2450 mm
    C. 23 dm
    D. 1 yd
    E. 1.25 m

24. The least common multiple of two numbers is 491,400. The greatest common factor of the same two numbers is 2,520. Which of the following could be the sum of the two numbers?
    A. 3,682
    B. 40,230
    C. 70,560
    D. 90,560
    E. 120,580
25. What digit will be in the ten-billionths place of the decimal representation of $\frac{3}{7}$?
    A. 1
    B. 2
    C. 5
    D. 6
    E. 8
26. If each number in a data set is multiplied by the same number, which of the following statements must be true?
    A. The range is unaffected.
    B. The median will be doubled.
    C. The mean is equal to the original mean times the multiplier.
    D. The interquartile range remains the same.
    E. There is no way to tell how the mean, median, or range will be affected unless the multiplier is known.
27. A party planner is showing Jaime options to serve at his next party. There are three choices of appetizers, four choices of main dishes, and two desserts. If any combination is possible, how many different combinations does Jamie have from which to choose?
    A. 9
    B. 12
    C. 16
    D. 20
    E. 24

28. How many of the following statements are always true?

Every square is a quadrilateral.
Every square is a rectangle.
Every trapezoid has two congruent sides.
The interior angles of a hexagon are always congruent.
The opposite angles of a parallelogram are always congruent.
The diagonals of a rectangle are always perpendicular.

A. 1
B. 2
C. 3
D. 4
E. 5

29. How many whole number factors does 165 have?

A. 3
B. 5
C. 7
D. 8
E. 9

30. At Pizza Parlor, there are 3 choices of crust, 2 choices of sauce, 1 choice of cheese, and 6 choices of other toppings. You must choose exactly one crust, exactly one sauce, and 1 cheese, but you can choose any number of toppings from 0 to 6. How many different pizzas could you make?

A. 12
B. 36
C. 72
D. 192
E. 384