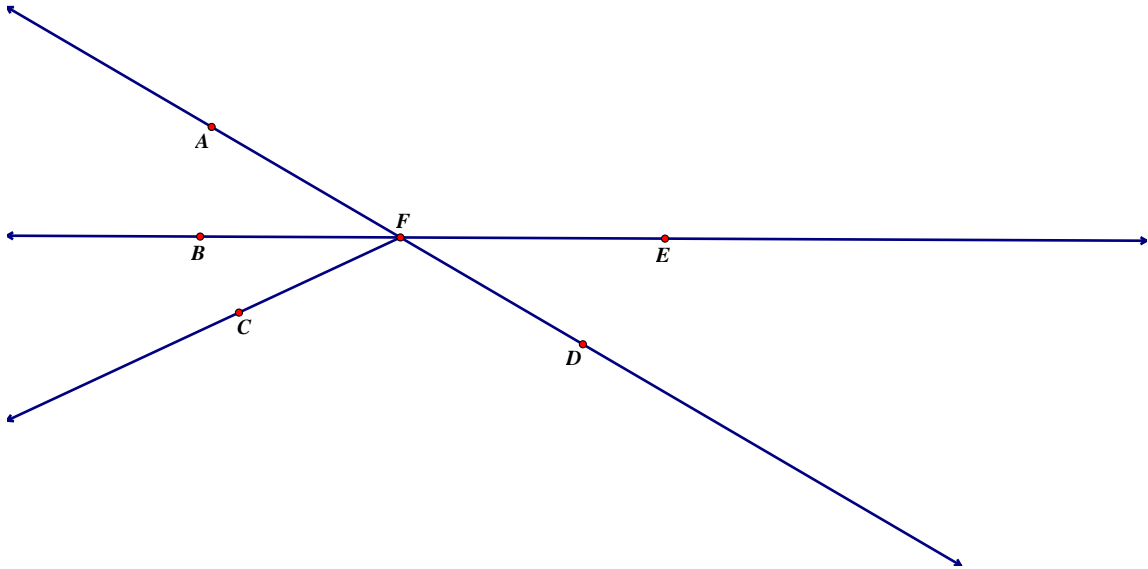


2016 7th Grade Test

1. B, F, and E are collinear, and A, F, and D are collinear. If the measure of Angle BFC is 25° , and the measure of Angle EFD is 30° , what is the sum of the measures of Angle AFB and Angle CFD?

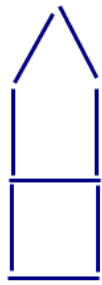


- A. 140°
 B. 145°
 C. 150°
 D. 155°
 E. 165°
2. A new theme park called Winding Coasters has tickets available for purchase 3 different ways. If the tickets are purchased directly from the theme park, the cost of each ticket is \$42. If tickets are purchased through Ticketmaster, the cost is \$40 plus 8% tax, but every tenth person gets in free. If the tickets are purchased through eBay, the total cost for a group of 20 people is \$841. What is the cheapest that 20 people could go to the park?
- A. \$777.60
 B. \$840
 C. \$841
 D. \$864
 E. \$900
3. If x and y are consecutive integers and $x < \sqrt[3]{76} < y$, then what is $x + y$?
- A. 6
 B. 7
 C. 9
 D. 11
 E. 17

2016 7th Grade Test

4. Sammy and Ted each have identical size blue or red marbles in a jar. Each announces that the probability of drawing a red marble is two-fifths. Sammy says so because he has been up all night drawing marbles and putting them back in and keeping count, and the proportion of red draws is very close to 40%. Ted says so because his jar is transparent and he tallied how many red and blue marbles were in the jar. Which is true?
- A. Both probabilities are experimental.
 - B. Both probabilities are theoretical.
 - C. Sammy's probability is experimental, and Ted's probability is theoretical.
 - D. Sammy's probability is theoretical, and Ted's probability is experimental.
 - E. Theoretical and experimental probabilities are always equal.
5. The length of a side of a square is given by $2x + 1$. The perimeter of the square is 56. Which equation could be used to find the value of x ?
- A. $2x + 1 = 56$
 - B. $(2x + 1)^2 = 56$
 - C. $4(2x + 1) = 56$
 - D. $(2x + 1)^4 = 56$
 - E. $2x = 56 \div 4$
6. Point B (4, -6) is rotated 90° counter-clockwise about the origin to obtain B', and then is reflected over the x-axis to obtain B''. What are the coordinates of B''?
- A. (6, 4)
 - B. (-6, 4)
 - C. (-6, -4)
 - D. (-4, 6)
 - E. (6, -4)
7. Which of the following expressions is equivalent to $8\left(\frac{3}{4}x - \frac{1}{4}\right) - 2(12 - x)$?
- A. -26
 - B. $4x - 22$
 - C. $5x - 22$
 - D. $8x - 22$
 - E. None of the above
8. Beth notices that she has several coins in her dresser drawer, \$1.41 total. She has 3 more nickels than dimes, 16 pennies, and 2 quarters. How many dimes does she have?
- A. 1
 - B. 4
 - C. 5
 - D. 8
 - E. 10

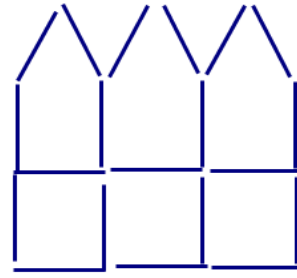
9. The houses in the pattern below are made from toothpicks. How many toothpicks would it take to build House 60?



House 1
8 TP

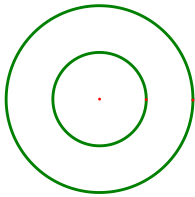


House 2
14 TP



House 3
20 TP

- A. 356
 B. 360
 C. 362
 D. 368
 E. 380
10. A point is randomly chosen within the larger circle below. What is the probability that the point chosen will fall within the smaller circle, if the diameter of the smaller circle is half that of the larger circle?



- A. $\frac{1}{4}$
 B. $\frac{1}{3}$
 C. $\frac{1}{2}$
 D. $\frac{3}{4}$
 E. It is impossible to tell without knowing the actual size of both circles.

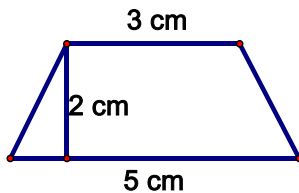
2016 7th Grade Test

11. 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. 6 mph
B. 9 mph
C. 12 mph
D. 18 mph
E. 27 mph
12. 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
13. How many whole numbers less than 100 have 3 as their only prime factor?
- A. 0
B. 1
C. 4
D. 27
E. 30
14. Which of the following geometric figures must always be mathematically regular?
- i. Squares
 - ii. Rectangles
 - iii. Rhombi
 - iv. Equilateral Triangles
- A. i only
B. i and ii only
C. i and iii only
D. i and iv only
E. All of the above.

15. Which equation would pass through (3, 4) and (0, 5)?
- A. $y = \frac{3}{4}x$
- B. $y = \frac{1}{3}x + 5$
- C. $y = -\frac{3}{4}x + 5$
- D. $y = 5x - 4$
- E. $y = -\frac{1}{3}x + 5$
16. Ms. Jazz wants to divide her choir class of 80 students into equal groups, with a prime number of students in each group. How many different ways can she accomplish this?
- A. 1
- B. 2
- C. 3
- D. 4
- E. 5
17. Which of the following represents a linear function?
- A. $y = (3x + 10)x$
- B. $y = (3 - 10x)x$
- C. $y = (3x + 10)(3 + 10)$
- D. $y = (3 - 10) \div x$
- E. None of the above
18. 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
19. The trapezoid below is the base of a prism. The prism has a height of 10 mm. Determine the volume of the prism.



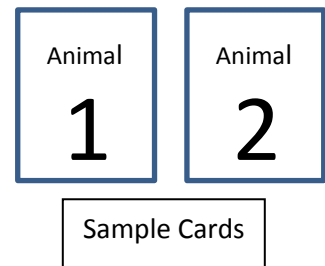
- A. 8 cm^3
- B. 16 cm^3
- C. 60 cm^3
- D. 80 cm^3
- E. 160 cm^3

20. What is the difference of the two largest two-digit prime numbers?
- A. 4
 - B. 5
 - C. 8
 - D. 9
 - E. 11
21. 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. You may only choose one of each. 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
22. Kaili's salary increases the same amount every year. Six years from now, Kaili's salary will be \$56,900. One year ago, her salary was \$51,300. What will her salary be ten years from now?
- A. \$59,300
 - B. \$60,100
 - C. \$60,900
 - D. \$71,800
 - E. \$82,400
23. Max's printing company needs to print a label for a cylindrical soup can. The diameter of the can is 7 cm and the height of the can is 10 cm. The label should cover the entire lateral surface of the soup can and have no overlap. What will the area of the label be?
- A. $35\pi \text{ cm}^2$
 - B. $49\pi \text{ cm}^2$
 - C. 70 cm^2
 - D. $70\pi \text{ cm}^2$
 - E. 490 cm^2
24. If 2 gips = 9 blogs, 4 blogs = 5 arks, and 1 ark = 12 canties, which list below lists the items from least to greatest value?
- A. Canties, arks, blogs, and gips
 - B. Gips, blogs, canties, and arks
 - C. Blogs, canties, gips, and arks
 - D. Gips, blogs, arks, and canties
 - E. Canties, arks, gips, and blogs

25. Your new \$3000 computer depreciates at a rate of 80% each year. What is it worth after 3 years?
- A. 24
 B. 600
 C. 1536
 D. 2000
 E. 2400
26. A certain pyramid has a 50-sided polygon as its base. How many edges must the pyramid have?
- A. 50
 B. 51
 C. 52
 D. 100
 E. 150
27. The least common multiple of two numbers is 491,400. The greatest common factor of the same two numbers is 2,520. What of the following could be the sum of the two numbers?
- A. 3,682
 B. 40,230
 C. 70,560
 D. 90,660
 E. 120,580

28. In Neverland, a card deck consists of the following 12 cards:

1 of Animal, 2 of Animal, 3 of Animal, 4 of Animal,
 1 of Plant, 2 of Plant, 3 of Plant, 4 of Plant,
 1 of Mineral, 2 of Mineral, 3 of Mineral, 4 of Mineral



If 2 cards are randomly chosen for a card hand, what is the probability that both cards will have the same number?

- A. $\frac{1}{3}$
 B. $\frac{1}{4}$
 C. $\frac{127}{132}$
 D. $\frac{2}{11}$
 E. $\frac{5}{12}$

29. In which of the following scenarios is quantity A directly proportional to quantity B?

Scenario 1: Joe starts running at 8:00 a.m. He runs a mile every 6 minutes. Bill starts running at 8:00 and runs a mile every 5 minutes. They both keep running until 9:00 a.m. For any specific time t between 8:00 and 9:00 a.m., A is the number of miles run by Joe between 8:00 and t , and B is the number of miles run by Bill between 8:00 and t .

Scenario 2: Joe starts running at 8:00 a.m. He runs a mile every 6 minutes. Bill starts running at 8:06 and also runs a mile every 6 minutes. They both keep running until 9:00 a.m. For any specific time t between 8:06 and 9:00 a.m., A is the number of miles run by Joe between 8:06 and t , and B is the number of miles run by Bill between 8:06 and t .

- A. Scenario 1 only
 - B. Scenario 2 only
 - C. Both Scenario 1 and Scenario 2
 - D. Neither Scenario 1 nor Scenario 2
 - E. It is impossible to tell whether either scenario is directly proportional.
30. Which is the best estimate for the length, or the longest dimension, of a standard one dollar bill?
- A. 15 mm
 - B. 7 cm
 - C. 0.2 m
 - D. 1.5 dm
 - E. 0.01 km