1. In the diagram, m∠QYR = 43° and m∠WTE = 122°. What is the measure of ∠YWT?
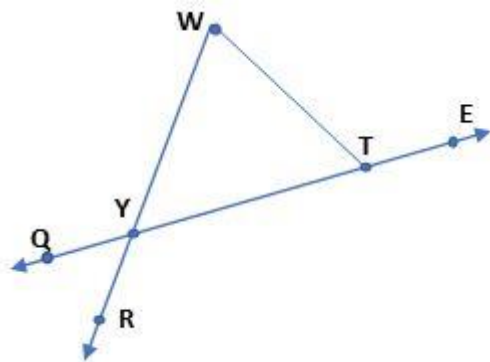

   A. 15°
   B. 58°
   C. 79°
   D. 101°
   E. 165°

2. Janie went shopping at the mall and spent $8 on a hat, $12 on a shirt, and $2 on a scarf. She had $30 to spend. If the purchases require 10% sales tax, how much money does Janie have left, assuming that she only purchased the three items listed?
   A. $.508
   B. $5.80
   C. $8.00
   D. $24.20
   E. $27.27

3. Toby helped his parents set up for a family party. He knows that he put 24 cans of cola and 18 cans of lemon-lime soda in the cooler before covering them with ice. If he randomly takes one can out of the cooler, what is the probability that he pulls out a can of cola?
   A. $\frac{1}{24}$

   B. $\frac{1}{2}$

   C. $\frac{4}{7}$

   D. $\frac{3}{4}$

   E. $\frac{4}{3}$

4. Dimitri is training for a bicycle race. He knows that he can ride 5 miles in 24 minutes. He thinks he can continue at that rate for at least two hours. If that is the case, how long would it take George to complete 22 miles?
   A. 41 minutes
   B. 44 minutes
   C. 54.5 minutes
   D. 105.6 minutes
   E. 120 minutes

5. The ratio of piano students to guitar students at the music studio is 3 to 8. Is 15 students are learning to play the piano, then how many students are enrolled at the studio?
   A. 20
   B. 23
   C. 40
   D. 55
   E. 70

6. A 50-inch television originally priced at $500 is on sale for 20% off. You have an additional discount of 10% off of the sale price. What price would you pay using both discounts?
   A. $150
   B. $350
   C. $360
   D. $390
   E. $470

7. Eduardo has a collection of movies. Of those movies, $\frac{2}{3}$ are cartoons. In his collection, $\frac{3}{5}$ of the movies were produced before the year 2001. What fraction of Eduardo's movies are cartoons from before 2001?
   A. $\frac{2}{5}$

   B. $\frac{1}{3}$

   C. $\frac{5}{8}$

   D. $\frac{19}{15}$

   E. Cannot be determined by the information given.

8. Ted and Li are sharing a candy bar. Ted's portion is three-fourths as large as Li's portion. What fractional part of the candy bar is Li's portion?

 A. $\frac{1}{4}$

 B. $\frac{1}{2}$

 C. $\frac{4}{7}$

 D. $\frac{4}{3}$

 E. $\frac{7}{4}$

9. The pet daycare facility houses 3 dogs for every 2 cats. If the combined total of dogs and cats at the facility is 240, how many cats are housed there?

 A. 48
 B. 96
 C. 120
 D. 144
 E. 160

10. How many cubes, 1 inch on each edge, could fit into a larger cube that is 3 inches on each edge?

 A. 3
 B. 6
 C. 9
 D. 12
 E. 27

11. If the area of a triangle is 30 square inches and its height is 10 inches, what is the length of its base?

 A. 1.5 inches
 B. 3 inches
 C. 5 inches
 D. 6 inches
 E. 12 inches

12. If the mean of 3, 8, and x is equal to the mean of 7 and x, what is the value of x?
   A. 1
   B. 2
   C. 3
   D. 4
   E. Cannot be determined from the information given.

13. In a group of 124 seventh graders, there are 42 more females than males. How many females are in the group?
   A. 41
   B. 42
   C. 73
   D. 83
   E. 104

14. What is the sum of all of the odd integers between 0 and 200?
   A. 200
   B. 9,950
   C. 10,000
   D. 20,000
   E. 20,100

15. Which relationship(s) between the independent and dependent variables shown below are proportional?

A.

B.

C.
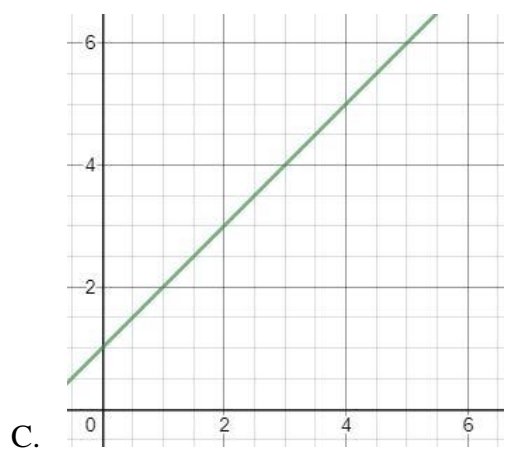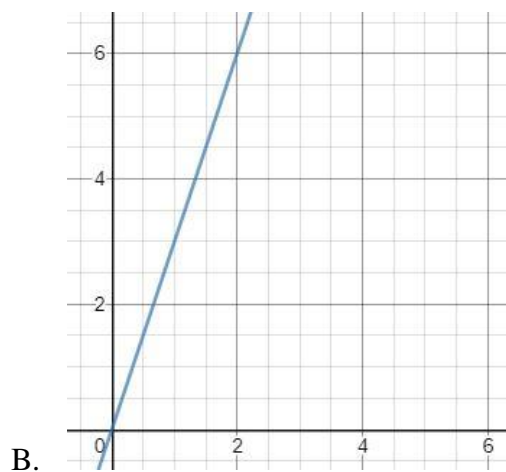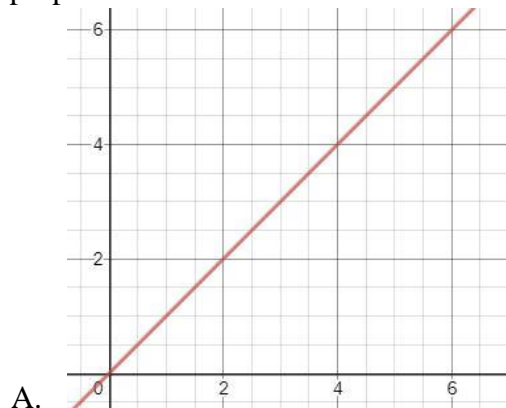
D. Both A and B show proportional relationships

E. Both A and C show proportional relationships

16. Sila is saving money to buy a gaming system that costs $280. She makes $10 per hour babysitting, and has already saved $15. Which choice below best represents the number of hours, h, that Sila can babysit to be able to afford the gaming system?

    A. $10h + 15 = 280$
    B. $10 + 15h = 280$
    C. $10h + 15 \leq 280$
    D. $10 + 15h \geq 280$
    E. $10h + 15 \geq 280$

17. Which set(s) of side lengths will not form a triangle?

    A. 3 meters, 4 meters, 6 meters
    B. 23 meters, 48 meters, 74 meters
    C. 30 meters, 40 meters, 50 meters
    D. Neither A nor B will form triangles.
    E. None of these will form triangles.

18. In an isosceles triangle the measure of Angle X is 30°. What are the measures of the other two interior angles of the triangle?

    A. 30° and 120°
    B. They are both 75°
    C. 30° and 75°
    D. Both A and C are possible solutions.
    E. Both A and B are possible solutions.

19. Two six-faced dice are rolled at the same time. What is the probability that the difference of their values is three or greater?

    A. 1/6
    B. 1/12
    C. 2/3
    D. 35/36
    E. 11/12

20. Louie was making cookies. He has $4\frac{1}{3}$ cups of flour. Each batch of cookies takes $\frac{3}{4}$ cup of flour. If he makes as many batches as he can, how much flour is left over? Assume that he has plenty of all of the other ingredients.

   A. $\frac{7}{12}$ cups

   B. $\frac{7}{9}$ cups

   C. $3\frac{7}{9}$ cups

   D. $3\frac{7}{12}$ cups

   E. $5\frac{7}{9}$ cups

21. If a dart is thrown and hits the target below, what is the probability that it lands inside the rectangular region, but outside both circular regions? The diameter of each circle is 4 meters.
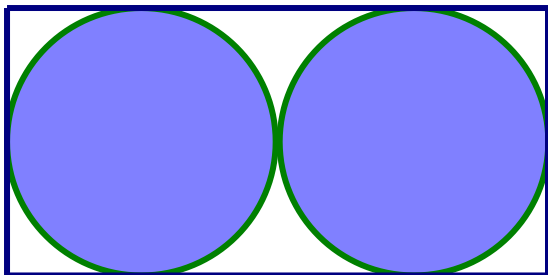
   A. $\frac{1}{8}$

   B. $\frac{\pi}{4}$

   C. $1 - \frac{\pi}{8}$

   D. $1 - \frac{\pi}{4}$

   E. $32 - 8\pi$

22. Which of the following are equal to $\frac{2}{3}$?

   A. 67%

   B. 66.66666%

   C. 0.666

   D. $\frac{66,666,666,666,666,666,666}{99,999,999,999,999,999,998}$

   E. None of the above are equal to $\frac{2}{3}$.

23. Which natural number could be placed in both blanks below to make the equation true?

$$2\_ \times 136 = \_ \times 476$$

    A. 4
    B. 6
    C. There is not enough information to find a solution.
    D. There is one solution, but it isn't listed here.
    E. There is more than one solution, and none of them are listed here.

24. Delilah is planting flowers in her garden. First, she planted petunias in $\frac{1}{3}$ of her garden. Next, she planted tulips in $\frac{1}{4}$ of the remaining area in the garden. At this point, there were 20 square feet of her garden with no flowers planted. What is the area of her garden?

    A. 18 square feet
    B. About 22 square feet
    C. 36 square feet
    D. 40 square feet
    E. 48 square feet

25. Ming has two rectangular prisms that are 2 cm by 4 cm by 7 cm. If he glues his two rectangular prisms together to make a larger rectangular prism, what are the least and greatest possible surface areas of the new, larger rectangular prism?

    A. 144 cm^2 and 172 cm^2
    B. 144 cm^2 and 192 cm^2
    C. 144 cm^2 and 184 cm^2
    D. 172 cm^2 and 192 cm^2
    E. 144 cm^2 and 184 cm^2

26. Which of the following statements is true?

    A. All triangles are polygons.
    B. All rectangles are squares.
    C. All parallelograms are rectangles.
    D. All circles are polygons.
    E. No cubes are prisms.
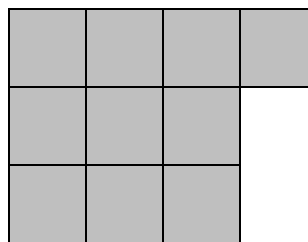
27. The first three stages of a pattern are shown below. How many square tiles would be used to create the figure for Stage 100?

Stage 1   Stage 2   Stage 3

    A. 299
    B. 300
    C. 302
    D. 10,000
    E. 10,001

28. Two squares overlap. The area of the overlapping region is $\frac{1}{4}$ of the larger square region's area and $\frac{4}{9}$ of the smaller square region's area. What is the ratio of the area of the smaller square to the area of the larger square?
    A. 1:4
    B. 1:2
    C. 4:9
    D. 3:4
    E. 9:16

29. A solid 2 cm × 2 cm × 2 cm cube is put inside a hollow 3 cm × 3 cm × 3 cm cube, and sinks to the bottom. If 12 cubic centimeters of water is poured into the larger cube, and the smaller cube remains on the bottom of the larger cube, how far up the side of the larger cube will the water reach?
    A. Less than 1 cm
    B. 2 cm
    C. $2\frac{1}{9}$ cm
    D. $2\frac{2}{9}$ cm
    E. $1\frac{1}{3}$ cm

30. Which answer choice has the greatest value?

    A. $\dfrac{99{,}999{,}999{,}999{,}999{,}999{,}991}{99{,}999{,}999{,}999{,}999{,}999{,}992}$

    B. $\dfrac{99{,}999{,}999{,}999{,}999{,}999{,}992}{99{,}999{,}999{,}999{,}999{,}999{,}993}$

    C. $\dfrac{99{,}999{,}999{,}999{,}999{,}999{,}993}{99{,}999{,}999{,}999{,}999{,}999{,}994}$

    D. $\dfrac{99{,}999{,}999{,}999{,}999{,}999{,}994}{99{,}999{,}999{,}999{,}999{,}999{,}995}$

    E. They are all equivalent.