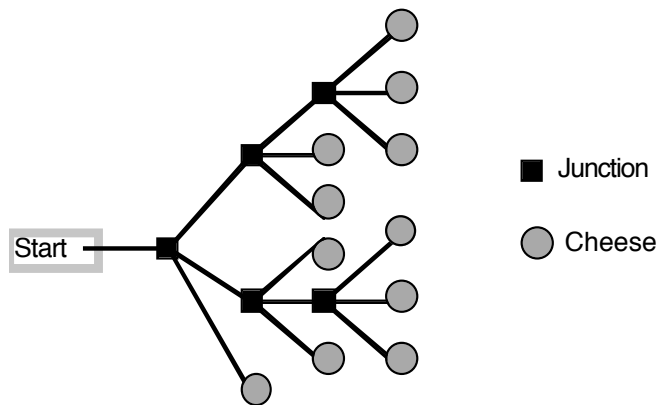


- The Renaissance Tower in Dallas is 216 m tall. A drawing of the Renaissance Tower is made using a scale in which 6 cm represents 27 m. How tall is the scale drawing of the Renaissance Tower?
  - 48 cm
  - 36.27 cm
  - 4800 cm
  - 36 cm
  - 3600 cm
- Which has the greatest perimeter?
  - A rectangle with area 60 square centimeters and length 20 centimeters
  - A rectangle with area 60 square centimeters and length 10 centimeters
  - A rectangle with area 60 square centimeters and length 4 centimeters
  - A rectangle with area 60 square centimeters and length 2 centimeters
  - A rectangle with area 60 square centimeters and length 1 centimeter
- A mouse goes through the maze below from left to right. At each junction in the maze, the mouse randomly chooses one of three different routes. At the end of each path there is a piece of cheese. (The mouse can go through a junction only once.) Find the probability that the mouse gets a piece of cheese by going through three junctions.

- $\frac{6}{11}$
- $\frac{7}{9}$
- $\frac{2}{9}$
- $\frac{3}{8}$
- $\frac{2}{5}$

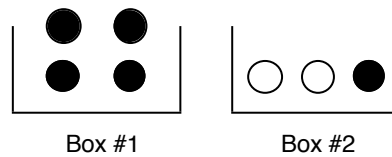


- Evaluate  $\sqrt[8]{\left(5\left(\frac{\sqrt{2.1^2}}{5}\right)\right)^8}$ . (Round to the nearest hundredth.)

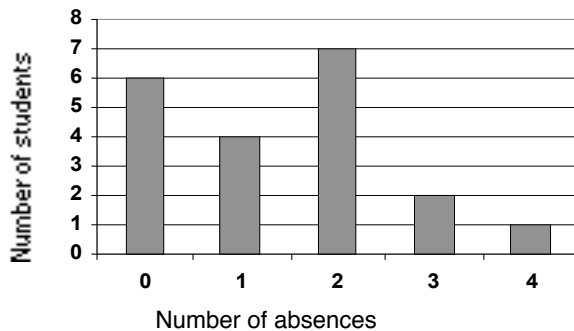
- 0.42
- 0.94
- 2.10
- 4.41
- 155.58

5. Tennessee license plates consist of 3 letters followed by 3 digits (0 – 9), for example ABA121. How many such plates have no repeated digit and do not use the letter Z?
- 12,654,720
  - 11,232,000
  - 9,936,000
  - 11,250,000
  - 7,875,000
6. There are two boxes as shown below. A ball is drawn at random from Box #1 and placed into Box #2. Then a ball is drawn at random from Box #2. Find the probability that the ball drawn from Box #2 is black.

- 0
- $\frac{1}{2}$
- $\frac{1}{4}$
- $\frac{1}{5}$
- $\frac{1}{8}$



7. The bar chart shows the number of absences for Mr. Reed's homeroom class. What is the probability that a student chosen at random from Mr. Reed's class has at least 1 absence?



- $\frac{4}{5}$
- $\frac{1}{5}$
- $\frac{7}{10}$
- $\frac{1}{2}$
- $\frac{1}{4}$

8. What digit is in the ones place of  $3^{90}$ ?

- a. 9
- b. 8
- c. 7
- d. 3
- e. 1

9. Mrs. Brown made a stem and leaf plot to show the grades on the first exam in her Spanish class. Use this information to determine the mode of the test scores for that class.

Test Scores (out of 100)

Stem	Leaf
9	2256
8	114666
7	588
6	58

- a. 6
- b. 83
- c. 84
- d. 85
- e. 86

10. Which of the following is false?

- a. Between any two distinct rational numbers, there are infinitely many rational numbers.
- b. A rational number divided by a non-zero rational number is always a rational number.
- c. A rational number squared is always a rational number.
- d. There is a largest rational number smaller than 1.
- e. The difference of two rational numbers is always a rational number.

11. Evaluate  $8^{-4}$ .

- a. -16
- b. 6
- c. 16
- d.  $\frac{1}{16}$
- e.  $\frac{3}{16}$

12. At the end of the year, my salary was three times its size at the beginning of the year. What was the percent increase of my salary from the beginning to the end of the year?

- a. 3%
- b. 30%
- c. 100%
- d. 200%
- e. 300%

13. Which of the following figures CAN be made?

- a. An equilateral right triangle
- b. A trapezoid that has exactly one right angle
- c. An obtuse triangle with exactly one acute angle
- d. A regular pentagon with each interior angle having a measure of  $72^\circ$
- e. A parallelogram with diagonals that are perpendicular to each other

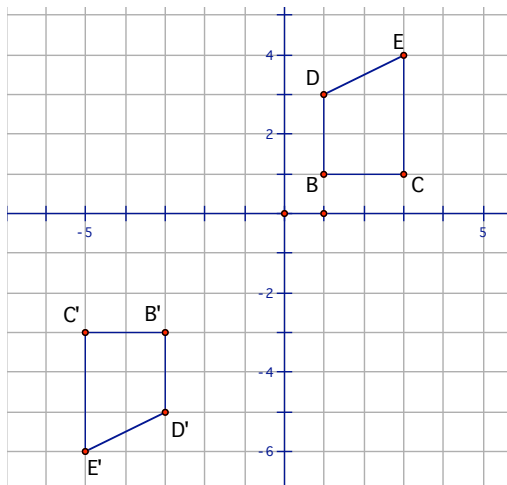
14. The figure shown here represents  $\frac{3}{2}$ . Which of the choices would represent  $\frac{3}{4}$ ? (This means

$\frac{3}{4}$  of 1, not  $\frac{3}{4}$  of  $\frac{3}{2}$ .)



- a.
- b.
- c.
- d.
- e.

15. On the graph below, quadrilateral B'C'E'D' is the result of rotating quadrilateral BCED  $180^\circ$  about a point. Which point is the center about which quadrilateral BCED was rotated?

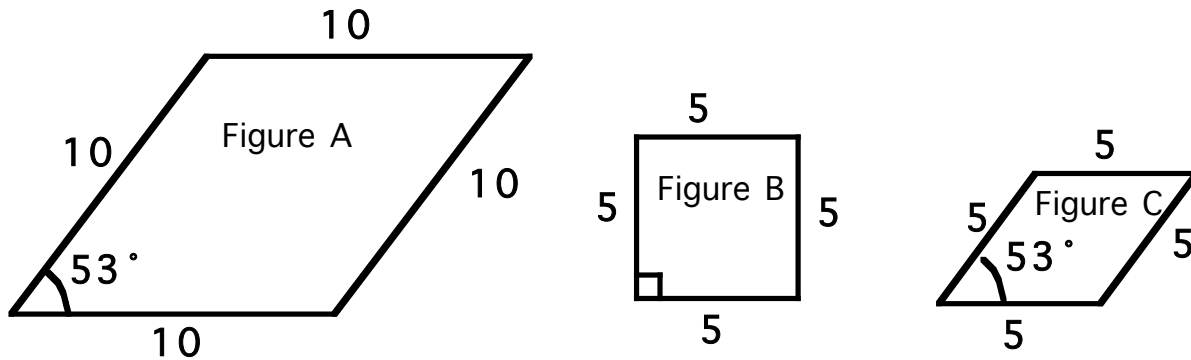


- a. (0, 0)
- b. (0, -1)
- c. (-1, -1)
- d. (-3, 1)
- e. (-2, 0)

16. When the base nine number  $23587_{\text{nine}}$  is converted to base ten, what digit in the units place?
- 3
  - 4
  - 5
  - 6
  - 7
17. Lynn bought 7 pieces of bubblegum. Sal bought 5 pieces of the same kind of bubblegum. Fran had  $84\text{¢}$ . The friends agreed to split the bubblegum evenly among all three. Lynn and Sal would get the  $84\text{¢}$  to repay them for the bubblegum they shared with Fran. How should the money be divided fairly between Lynn and Sal?
- Lynn should get  $63\text{¢}$  and Sal should get  $21\text{¢}$ .
  - Lynn should get  $60\text{¢}$  and Sal should get  $24\text{¢}$ .
  - They should each get  $42\text{¢}$ .
  - Lynn should get  $49\text{¢}$  and Sal should get  $35\text{¢}$ .
  - Lynn should get  $70\text{¢}$  and Sal should get  $14\text{¢}$ .
18. A crepe paper streamer is 823.5 centimeters long. To decorate a table, the streamer is cut into strips that are 45 cm long. After as many 45-cm strips as possible have been cut from the streamer, how long will the leftover piece of streamer be?
- 3 cm long
  - 0.3 cm long
  - 0.03 cm long
  - 13.5 cm long
  - 1.35 cm long
19. Four hundred tickets were sold for the Spring Fling this year. "Wow!" John said, "That's 25% more than we sold last year!" How many tickets were sold last year?
- 100
  - 300
  - 320
  - 325
  - 375
20. Two adjacent sides of a parallelogram have lengths 7 centimeters and 8 centimeters. Which of the following statements MUST be true?
- The area of the parallelogram is 56 square centimeters.
  - The area of the parallelogram is less than 56 square centimeters.
  - The area of the parallelogram is more than 56 square centimeters.
  - The area of the parallelogram is at least 56 square centimeters.
  - The area of the parallelogram is at most 56 square centimeters.

21. Which of the following letters of the alphabet has rotational symmetry but not line symmetry?
- A
  - N
  - H
  - R
  - X
22. Abe, Bet, and Cora had just finished playing a video game. Abe scored 5,875 points. Bet's score was 60% of Abe's. Cora's score was 200% of Bet's. What percent of Abe's score was Cora's?
- $83.\bar{3}\%$
  - 120%
  - 140%
  - 150%
  - 260%
23. Jan has a digital scale that displays weight to the nearest pound. This morning, the scale said that Jan weighed 115 pounds. Assuming that the scale is working correctly, what is the LEAST that Jan could weigh?
- 114.1 pounds
  - 114.05 pounds
  - 114.5 pounds
  - 115 pounds
  - 114.9 pounds
24. From my house to the airport is 48 miles. Which statement is true?
- It is more than 48 kilometers from my house to the airport.
  - It is less than 48 kilometers from my house to the airport.
  - It is exactly 48 kilometers from my house to the airport.
  - It is less than 48 millimeters from my house to the airport.
  - It is less than 48 decimeters from my house to the airport.
25. Which statement is true about  $\left(\frac{7}{8}\right)^{600} \cdot \left(\frac{8}{7}\right)^{500}$  ?
- The product is greater than 2,100.
  - The product is greater than 700 but less than 1000.
  - The product is greater than 3 but less than 700.
  - The product is greater than 1 but less than 3.
  - The product is less than 1 but greater than 0.

26. Which of the three parallelograms shown are similar figures?



- All three are similar to each other.
  - A is similar to B but A is not similar to C.
  - B is similar to C but B is not similar to A.
  - A is similar to C but B is not similar to C.
  - No two of the three figures are similar.
27. A large cube is made up of identical unit cubes. After the unit cubes are glued together to form the large cube, it is dipped in paint. For example, 27 unit cubes could be assembled into a  $3 \times 3 \times 3$  cube. After it was dipped in paint, 8 of the unit cubes would have three painted faces, 12 would have two painted faces, 6 would have one painted face, and 1 would have no painted faces. If 1,728 unit cubes were assembled into a  $12 \times 12 \times 12$  cube and then dipped into paint, how many of the unit cubes would then have three painted faces?
- 8
  - 24
  - 17
  - 144
  - 96

28. Which statement is NOT ALWAYS true for positive integers  $x$  and  $y$ ?

- $\sqrt{x^2 + y^2} = x + y$
- $\frac{2x^2}{2y^2} = \left(\frac{x}{y}\right)^2$
- $(x + y)(x - y) = x^2 - y^2$
- $x - y = x + (-y)$
- $\left(\frac{y}{x}\right)^{-1} = \frac{x}{y}$

29. Evaluate:  $\frac{1.3 + 15.6}{2.6 + 23.4}$ .

- a.  $\frac{7}{6}$
  - b.  $\frac{13}{20}$
  - c. 6.5
  - d. 29.9
  - e. 30.7
30. There are three tribes on an island. Members of the Liar Tribe always lie. Members of the Truthful Tribe always tell the truth. Members of the Alternator Tribe always alternate their statements: they tell one lie, then one true statement, then one lie, and so on. Which situation is impossible?
- a. A Liar says, "I am a Liar."
  - b. A Truthful says, "I am a Truthful."
  - c. An Alternator says, "I am a Liar."
  - d. A Liar says, "I am a Truthful."
  - e. An Alternator says, "I am an Alternator."