

Math Section

Q1:

A family-size box of cereal contains more cereal and costs more than the regular-size box of cereal. What is the cost per ounce of the family-size box of cereal?

- (1) The family-size box of cereal contains 10 ounces more than the regular-size box of cereal.
- (2) The family-size box of cereal costs \$5.40.

- A. Statement (1) **ALONE** is sufficient, but statement (2) alone is not sufficient.
- B. Statement (2) **ALONE** is sufficient, but statement (1) alone is not sufficient.
- C. **BOTH** statements **TOGETHER** are sufficient, but **NEITHER** statement **ALONE** is sufficient.
- D. **EACH** statement **ALONE** is sufficient.
- E. Statements (1) and (2) **TOGETHER** are **NOT** sufficient.

Answer:

Q2:

A certain roller coaster has 3 cars, and a passenger is equally likely to ride in any 1 of the 3 cars each time that passenger rides the roller coaster. If a certain passenger is to ride the roller coaster 3 times, what is the probability that the passenger will ride in each of the 3 cars?

- A. 0
- B. $\frac{1}{9}$
- C. $\frac{2}{9}$
- D. $\frac{1}{3}$
- E. 1

Answer:

Q3:

If x and y are positive, is $4x > 3y$?

- (1) $x > y - x$
- (2) $x/y < 1$

- A. Statement (1) **ALONE** is sufficient, but statement (2) alone is not sufficient.
- B. Statement (2) **ALONE** is sufficient, but statement (1) alone is not sufficient.
- C. **BOTH** statements **TOGETHER** are sufficient, but **NEITHER** statement **ALONE** is sufficient.
- D. **EACH** statement **ALONE** is sufficient.
- E. Statements (1) and (2) **TOGETHER** are **NOT** sufficient.

Answer:

Q4:

If n is the product of the integers from 1 to 20 inclusive, what is the greatest integer k for which 2^k is a factor of n ?

- A. 10
- B. 12
- C. 15
- D. 18
- E. 20

Answer:

Q5:

Is $x > k$?

- (1) $2^x \cdot 2^k = 4$
- (2) $9^x \cdot 3^k = 81$

- A. Statement (1) **ALONE** is sufficient, but statement (2) alone is not sufficient.
- B. Statement (2) **ALONE** is sufficient, but statement (1) alone is not sufficient.
- C. **BOTH** statements **TOGETHER** are sufficient, but **NEITHER** statement **ALONE** is sufficient.
- D. **EACH** statement **ALONE** is sufficient.
- E. Statements (1) and (2) **TOGETHER** are **NOT** sufficient.

Answer:

Q6:

If x and y are positive, what is the value of $x - y$?

- (1) $(x^2 - y^2) / (x + y) = 4$
- (2) $x + y = 7$

- A. Statement (1) **ALONE** is sufficient, but statement (2) alone is not sufficient.
- B. Statement (2) **ALONE** is sufficient, but statement (1) alone is not sufficient.
- C. **BOTH** statements **TOGETHER** are sufficient, but **NEITHER** statement **ALONE** is sufficient.
- D. **EACH** statement **ALONE** is sufficient.
- E. Statements (1) and (2) **TOGETHER** are **NOT** sufficient.

Answer:

Q7:

A circular mat with diameter 20 inches is placed on a square tabletop, each of whose sides is 24 inches long. Which of the following is closest to the fraction of the tabletop covered by the mat?

- A. $5/12$
- B. $2/5$
- C. $1/2$
- D. $3/4$
- E. $5/6$

Answer:

Q8:

In 1997 there were 300 female employees at Company C. If the number of female employees at Company C increased by 60 percent from 1997 to 1987, by what percent did the number of female employees at Company C increase from 1987 to 1997?

- (1) From 1977 to 1997 the number of female employees increased by 200 percent at Company C.
- (2) In 1977 there were 100 female employees at Company C.

- A. Statement (1) **ALONE** is sufficient, but statement (2) alone is not sufficient.
- B. Statement (2) **ALONE** is sufficient, but statement (1) alone is not sufficient.
- C. **BOTH** statements **TOGETHER** are sufficient, but **NEITHER** statement **ALONE** is sufficient.
- D. **EACH** statement **ALONE** is sufficient.
- E. Statements (1) and (2) **TOGETHER** are **NOT** sufficient.

Answer:

Q9:

A gardener is going to plant 2 red rosebushes and 2 white rosebushes. If the gardener is to select each of the bushes at random, one at a time, and plant them in a row, what is the probability that the 2 rosebushes in the middle of the row will be the red rosebushes?

- A. $1/12$
- B. $1/6$
- C. $1/5$
- D. $1/3$
- E. $1/2$

Answer:

Q10:

A set of numbers has the property that for any number t in the set, $t + 2$ is in the set. If -1 is in the set, which of the following must also be in the set?

- I. -3
 - II. 1
 - III. 5
-
- A. I only
 - B. II only
 - C. I and II only
 - D. II and III only
 - E. I, II, and III

Answer:

Q11:

In a corporation, 50 percent of the male employees and 40 percent of the female employees are at least 35 years old. If 42 percent of all the employees are at least 35 years old, what fraction of the employees in the corporation are females?

- A. $\frac{3}{5}$
- B. $\frac{2}{3}$
- C. $\frac{3}{4}$
- D. $\frac{4}{5}$
- E. $\frac{5}{6}$

Answer:

Q12:

If n is an integer and $2 < n < 6$, what is the value of n ?

- (1) n is a factor of 15.
- (2) n is a factor of 21.

- A. Statement (1) **ALONE** is sufficient, but statement (2) alone is not sufficient.
- B. Statement (2) **ALONE** is sufficient, but statement (1) alone is not sufficient.
- C. **BOTH** statements **TOGETHER** are sufficient, but **NEITHER** statement **ALONE** is sufficient.
- D. **EACH** statement **ALONE** is sufficient.
- E. Statements (1) and (2) **TOGETHER** are **NOT** sufficient.

Answer:

Q13:

If x and y are positive, is $3x > 7y$?

- (1) $x > y + 4$
- (2) $-5x < -14y$

- A. Statement (1) **ALONE** is sufficient, but statement (2) alone is not sufficient.
- B. Statement (2) **ALONE** is sufficient, but statement (1) alone is not sufficient.
- C. **BOTH** statements **TOGETHER** are sufficient, but **NEITHER** statement **ALONE** is sufficient.
- D. **EACH** statement **ALONE** is sufficient.
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Answer:

Q14:

If $10^{50} - 74$ is written as an integer in base 10 notation, what is the sum of the digits in that integer?

- A. 424
- B. 433
- C. 440
- D. 449

E. 467

Answer:

Q15:

Ann, Carol, and Judy paid a total of \$45 for their dinner at a restaurant. If Ann paid $\frac{2}{5}$ of the total amount, Carol paid \$17, and Judy paid the rest, what fraction of the total amount did Judy pay?

- A. $\frac{2}{9}$
- B. $\frac{14}{45}$
- C. $\frac{1}{3}$
- D. $\frac{2}{5}$
- E. $\frac{7}{15}$

Answer:

Q16:

If J, S, and V are points on the number line, what is the distance between S and V?

- (1) The distance between J and S is 20.
- (2) The distance between J and V is 25.

- A. Statement (1) **ALONE** is sufficient, but statement (2) alone is not sufficient.
- B. Statement (2) **ALONE** is sufficient, but statement (1) alone is not sufficient.
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Answer:

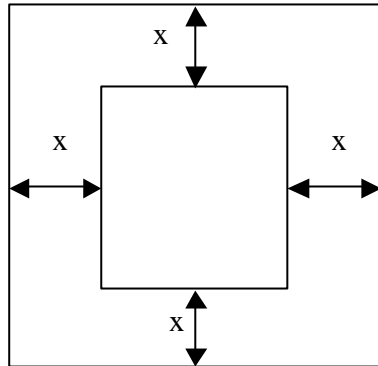
Q17:

In Town X, 64 percent of the population are employed, and 48 percent of the population are employed males. What percent of the employed people in Town X are females?

- A. 16%
- B. 25%
- C. 32%
- D. 40%
- E. 52%

Answer:

Q18:



Note: Figure not drawn to scale.

The figure shows a square patio surrounded by a walkway of width x meters. If the area of the walkway is 132 square meters and the width of the patio is 5 meters greater than the width of the walkway, what is the area of the patio, in square meters?

- A. 56
- B. 64
- C. 68
- D. 81
- E. 100

Answer:

Q19:

A total of \$60,000 was invested for one year. But of this amount earned simple annual interest at the rate of x percent per year, and the rest earned simple annual interest at the rate of y percent per year. If the total interest earned by the \$60,000 for that year was \$4,080, what is the value of x ?

- (1) $x = (3/4)y$
- (2) The ratio of the amount that earned interest at the rate of x percent per year to the amount that earned interest at the rate of y percent per year was 3 to 2.

- A. Statement (1) **ALONE** is sufficient, but statement (2) alone is not sufficient.
- B. Statement (2) **ALONE** is sufficient, but statement (1) alone is not sufficient.
- C. **BOTH** statements **TOGETHER** are sufficient, but **NEITHER** statement **ALONE** is sufficient.
- D. **EACH** statement **ALONE** is sufficient.
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Answer:

Q20:

If $x > 0$, then $1/[\sqrt{2x} + \sqrt{vx}] =$

- A. $1/v(3x)$
- B. $1/[2v(2x)]$
- C. $1/(xv^2)$
- D. $(v^2-1)/vx$
- E. $(1+v^2)/vx$

Answer:

Q21:

When Leo imported a certain item, he made a 7 percent import tax on the portion of the total value of the item in excess of \$1,000. If the amount of the import tax that Leo paid was \$87.50, what was the total value of the item?

- A. \$1,600
- B. \$1,850
- C. \$2,250
- D. \$2,400
- E. \$2,750

Answer:

Q22:

In the sequence 1, 2, 4, 8, 16, 32, ..., each term after the first is twice the previous term. What is the sum of the 16th, 17th, and 18th terms in the sequence?

- A. 2^{18}
- B. $3(2^{17})$
- C. $7(2^{16})$
- D. $3(2^{16})$
- E. $7(2^{15})$

Answer:

Q23:

In the xy -plane, point (r, s) lies on a circle with center at the origin. What is the value of $r^2 + s^2$?

- (1) The circle has radius 2.
- (2) The point $(\sqrt{2}, -\sqrt{2})$ lies on the circle.

- A. Statement (1) **ALONE** is sufficient, but statement (2) alone is not sufficient.
- B. Statement (2) **ALONE** is sufficient, but statement (1) alone is not sufficient.
- C. **BOTH** statements **TOGETHER** are sufficient, but **NEITHER** statement **ALONE** is sufficient.
- D. **EACH** statement **ALONE** is sufficient.
- E. Statements (1) and (2) **TOGETHER** are **NOT** sufficient.

Answer:

Q24:

If w and c are integers, is $w > 0$?

(1) $w + c > 50$

(2) $c > 48$

A. Statement (1) **ALONE** is sufficient, but statement (2) alone is not sufficient.

B. Statement (2) **ALONE** is sufficient, but statement (1) alone is not sufficient.

C. **BOTH** statements **TOGETHER** are sufficient, but **NEITHER** statement **ALONE** is sufficient.

D. **EACH** statement **ALONE** is sufficient.

E. Statements (1) and (2) **TOGETHER** are **NOT** sufficient.

Answer:

Q25:

A photographer will arrange 6 people of 6 different heights for photograph by placing them in two rows of three so that each person in the first row is standing in front of someone in the second row. The heights of the people within each row must increase from left to right, and each person in the second row must be taller than the person standing in front of him or her. How many such arrangements of the 6 people are possible?

A. 5

B. 6

C. 9

D. 24

E. 36

Answer:

Q26:

Running at their respective constant rates, machine X takes 2 days longer to produce w widgets than machine Y. At these rates, if the two machines together produce $\frac{5}{4}w$ widgets in 3 days, how many days would it take machine X alone to produce $2w$ widgets?

A. 4

B. 6

C. 8

D. 10

E. 12

Answer:

Q27:

If $n = 8^{11} - 8$, what is the units digit of n ?

A. 0

B. 1

C. 4

D. 6

E 8

Answer:

Q28:

For any positive integer n , the sum of the first n positive integers equals $[n(n+1)]/2$.
What is the sum of all the even integers between 99 and 301?

- A. 10,100
- B. 20,200
- C. 22,650
- D. 40,200
- E. 45,150

Answer:

Q29:

June 25, 1982, fell on a Friday. On which day of the week did June 25, 1987, fall? (Note: 1984 was a leap year.)

- A. Sunday
- B. Monday
- C. Tuesday
- D. Wednesday
- E. Thursday

Answer:

Q30:

Joanna bought only \$0.15 stamps and \$0.29 stamps. How many \$0.15 stamps did she buy?

- (1) She bought \$4.40 worth of stamps.
- (2) She bought an equal number of \$0.15 stamps and \$0.29 stamps.

- A. Statement (1) **ALONE** is sufficient, but statement (2) alone is not sufficient.
- B. Statement (2) **ALONE** is sufficient, but statement (1) alone is not sufficient.
- C. **BOTH** statements **TOGETHER** are sufficient, but **NEITHER** statement **ALONE** is sufficient.
- D. **EACH** statement **ALONE** is sufficient.
- E. Statements (1) and (2) **TOGETHER** are **NOT** sufficient.

Answer:

Q31:

A positive integer n is said to be “prime-saturated” if the product of all the different positive prime factors of n is less than the square root of n . What is the greatest two-digit prime-saturated integer?

- A. 99
- B. 98

- C. 97
- D. 96
- E. 95

Answer:

Q32:

For a convention, a hotel charges a daily room rate of \$120 for 1 person and x dollars for each additional person. What is the charge for each additional person?

- (1) The daily cost per person for 4 people sharing the cost of a room equally is \$45.
- (2) The daily cost per person for 2 people sharing the cost of a room equally is \$25 more than the corresponding cost for 4 people.

- A. Statement (1) **ALONE** is sufficient, but statement (2) alone is not sufficient.
- B. Statement (2) **ALONE** is sufficient, but statement (1) alone is not sufficient.
- C. **BOTH** statements **TOGETHER** are sufficient, but **NEITHER** statement **ALONE** is sufficient.
- D. **EACH** statement **ALONE** is sufficient.
- E. Statements (1) and (2) **TOGETHER** are **NOT** sufficient.

Answer:

Q33:

Is $xy > x/y$?

- (1) $xy > 0$
- (2) $y < 0$

- A. Statement (1) **ALONE** is sufficient, but statement (2) alone is not sufficient.
- B. Statement (2) **ALONE** is sufficient, but statement (1) alone is not sufficient.
- C. **BOTH** statements **TOGETHER** are sufficient, but **NEITHER** statement **ALONE** is sufficient.
- D. **EACH** statement **ALONE** is sufficient.
- E. Statements (1) and (2) **TOGETHER** are **NOT** sufficient.

Answer:

Q34:

The function f is defined by $f(x) = -1/x$ for all nonzero numbers x . If $f(a) = -1/2$ and $f(ab) = 1/6$, then $b =$

- A. 3
- B. $1/3$
- C. $-1/3$
- D. -3
- E. -12

Answer:

Q35:

What is the median number of employees assigned per project for the projects at Company Z?

- (1) 25 percent of the projects at Company Z have 4 or more employees assigned to each project.
- (2) 35 percent of the projects at Company Z have 2 or fewer employees assigned to each project.

- A. Statement (1) **ALONE** is sufficient, but statement (2) alone is not sufficient.
- B. Statement (2) **ALONE** is sufficient, but statement (1) alone is not sufficient.
- C. **BOTH** statements **TOGETHER** are sufficient, but **NEITHER** statement **ALONE** is sufficient.
- D. **EACH** statement **ALONE** is sufficient.
- E. Statements (1) and (2) **TOGETHER** are **NOT** sufficient.

Answer:

Q36:

Each signal that a certain ship can make is comprised of 3 different flags hanging vertically in a particular order. How many unique signals can be made by using 4 different flags?

- A. 10
- B. 12
- C. 20
- D. 24
- E. 36

Answer:

Q37:

A jar contains 16 marbles, of which 4 are red, 3 are blue, and the rest are yellow. If 2 marbles are to be selected at random from the jar, one at a time without being replaced, what is the probability that the first marble selected will be red and the second marble selected will be blue?

- A. $\frac{3}{64}$
- B. $\frac{1}{20}$
- C. $\frac{1}{16}$
- D. $\frac{1}{12}$
- E. $\frac{1}{8}$

Answer:

Answers:

ECEDC, ACDBD, DBDCA, EBBCD, CEDCA, ECBCD, DDEDC, DB