

Math Section

Q1:

At the opening of a trading day at a certain stock exchange, the price per share of stock K was \$8. If the price per share of stock K was \$9 at the closing of the day, what was the percent increase in the price per share of stock K for that day?

- A. 1.4%
- B. 5.9%
- C. 11.1%
- D. 12.5%
- E. 23.6%

Answer:

Q2:

Which of the following is equal to $(2^{12} - 2^6) / (2^6 - 2^3)$?

- A. $2^6 + 2^3$
- B. $2^6 - 2^3$
- C. 2^9
- D. 2^3
- E. 2

Answer:

Q3:

What is the probability that a student randomly selected from a class of 60 students will be a male who has brown hair?

- (1) One-half of the students have brown hair.
- (2) One-third of the students are males.

- 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:

John, Karen, and Luke collected cans of vegetables for a food drive. The number of cans that John collected was $\frac{1}{2}$ the number of cans that Karen collected and $\frac{1}{3}$ the number of cans that Luke collected. The number of cans that Luke collected was what fraction of the total number of cans that John, Karen, and Luke collected?

- A. $\frac{1}{5}$
- B. $\frac{1}{3}$
- C. $\frac{2}{5}$
- D. $\frac{1}{2}$
- E. $\frac{2}{3}$

Answer:

Q5:

The sides of a square region, measured to the nearest centimeters, are 6 centimeters long. The least possible value of the actual area of the square region is

- A. 36.00 sq cm
- B. 35.00 sq cm
- C. 33.75 sq cm
- D. 30.25 sq cm
- E. 25.00 sq cm

Answer:

Q6:

For all integers x and y , the operation Δ is defined by $x\Delta y = (x+2)^2 + (y+3)^2$. What is the value of integer t ?

- (1) $t \Delta 2 = 74$
- (2) $2 \Delta t = 80$

- 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:

Before a certain tire is used, 40 percent of its total weight consists of tread. If during a lifetime of use, 50 percent, by weight, of the tire's tread is lost and no other parts of the tire is lost, what per cent of the tire's total remaining weight consists of the remaining tread?

- A. 55%
- B. 20%
- C. 25%
- D. 30%
- E. 35%

Answer:

Q8:

When positive integer x is divided by 5, the remainder is 3; and when x is divided by 7, the remainder is 4. When positive integer y is divided by 5, the remainder is 3; and when y is divided by 7, the remainder is 4. If $x > y$, which of the following must be a factor of $x - y$?

- A. 12
- B. 15
- C. 20
- D. 28
- E. 35

Answer:

Q9:

If x and y are nonzero integers, is 18 a factor of xy^2 ?

- (1) x is a multiple of 54.
- (2) y is a multiple of 6.

- 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:

Q10:

Is $(t/3) > (w/5)$?

- (1) $w > t$
- (2) $5t > 3w$

- 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:

Q11:

A certain company that sells only cars and trucks reported that revenues from car sales in 1997 were down 11 percent from 1996 and revenues from truck sales in 1997 were up 7 percent from 1996. If total revenues from car sales and truck sales in 1997 were up 1

percent from 1996, what is the ratio of revenue from car sales in 1996 to revenue from truck sales in 1996?

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

Answer:

Q12:

Which of the following is equal to $[1 / (\text{SQRT}(3) - \text{SQRT}(2))]^2$

- A. 1
- B. 5
- C. $\text{SQRT}(6)$
- D. $5 - \text{SQRT}(6)$
- E. $5 + 2 \text{SQRT}(6)$

Answer:

Q13:

On a certain day, Tim invested \$1,000 at 10 percent annual interest, compounded annually, and Lana invested \$2,000 at 5 percent annual interest, compounded annually. The total amount of interest earned by Tim's investment in the first 2 years was how much greater than the total amount of interest earned by Lana's investment in the first 2 years?

- A. \$5
- B. \$15
- C. \$50
- D. \$100
- E. \$105

Answer:

Q14:

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:

Q15:

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:

Q16:

Is $r > -1$?

- (1) $r > -5$
(2) $r < 16$

- 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:

Q17:

If the volume of a small container is 14,520 cubic millimeters, what is the volume of the container in cubic centimeters?

(1 millimeter = 0.1 centimeter)

- A. 0.1452
B. 1.452
C. 14.52
D. 145.2
E. 1,452

Answer:

Q18:

$$2x + y = 12$$

$$|y| \leq 12$$

For how many ordered pairs (x, y) that are solutions of the system above are x and y both integers?

- A. 7
- B. 10
- C. 12
- D. 13
- E. 14

Answer:

Q19:

In the xy -plane, the sides of a certain rectangle are parallel to the axes. If one of the vertices of the rectangle is $(-1, -2)$, what is the perimeter of the rectangle?

- (1) One of the vertices of the rectangle is $(2, -2)$.
- (2) One of the vertices of the rectangle is $(2, 3)$.

- 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:

Q20:

Tom, Jane, and Sue each purchased a new house. The average (arithmetic mean) price of the three houses was \$120,000. What was the median price of the three houses?

- (1) The price of Tom's house was \$110,000.
- (2) The price of Jane's house was \$120,000.

- 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:

Q21:

A certain circle in the xy -plane has its center at the origin. If P is a point on the circle, what is the sum of the squares of the coordinates of P ?

- (1) The radius of the circle is 4.
- (2) The sum of the coordinates of P is 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:

Q22:

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:

Q23:

One kilogram of a certain coffee blend consists of x kilogram of type I coffee and y kilogram of type II coffee. The cost of the blend is C dollars per kilogram, where $C = 6.5x + 8.5y$. Is $x < 0.8$?

- (1) $y > 0.15$
- (2) $C \geq 7.30$

- 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:

Of the goose eggs laid at a certain pond, $\frac{2}{3}$ hatched, and $\frac{3}{4}$ of the geese that hatched

from those eggs survived the first month. Of the geese that survived the first month, $\frac{3}{5}$

did not survive the first year. If 120 geese survived the first year and if no more than one goose hatched from each egg, how many goose eggs were laid at the pond?

- A. 280
- B. 400
- C. 540
- D. 600
- E. 840

Answer:

Q25:

If n is a positive integer, what is the remainder when $3^{8n+3} + 2$ is divided by 5?

- A. 0
- B. 1
- C. 2
- D. 3
- E. 4

Answer:

Q26:

What is the greatest common factor of the positive integers j and k ?

- (1) $k = j + 1$
- (2) jk is divisible by 5.

- 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:

Q27:

The interior of a rectangular carton is designed by a certain manufacturer to have a volume of x cubic feet and a ratio of length to width to height of 3 : 2 : 2. In terms of x , which of the following equals the height of the carton, in feet?

- A. $\sqrt[3]{x}$
- B. $\sqrt[3]{\frac{2x}{3}}$
- C. $\sqrt[3]{\frac{3x}{2}}$

- D. $\frac{2}{3}\sqrt[3]{x}$
- E. $\frac{3}{2}\sqrt[3]{x}$

Answer:

Q28:

A certain company sold 800 units of its product for \$8 each and 1,000 units of its product for \$5 each. If the company's cost of producing each unit of its product was \$6, what was the company's profit or loss on the 1,800 units of its product?

- A. \$1,600 loss
- B. \$600 loss
- C. No profit or loss
- D. \$600 profit
- E. \$1,600 profit

Answer:

Q29:

What is the remainder when the positive integer n is divided by the positive integer k , where $k > 1$?

- (1) $n = (k+1)^3$
- (2) $k = 5$

- 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:

Q30:

In a stack of cards, 9 cards are blue and the rest are red. If 2 cards are to be chosen at random from the stack without replacement, the probability that the cards chosen will both be blue is $\frac{6}{11}$. What is the number of cards in the stack?

- A. 10
- B. 11
- C. 12
- D. 15
- E. 18

Answer:

Q31:

In triangle PQR, the measure of angle P is 30° more than twice the measure of angle Q. What is the measure of angle R?

- (1) $PQ = QR$
- (2) The measure of angle P is 78° .

- 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:

Q32:

What is the remainder when the sum of the positive integers x and y is divided by 6?

- (1) When x is divided by 6, the remainder is 3.
- (2) When y is divided by 6, the remainder is 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:

Q33:

If $xy \neq 0$, what is the value of $1/x + 1/y$?

(1) $1 / (x+y) = -1$

(2) $xy = 6(x+y)$

- 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:

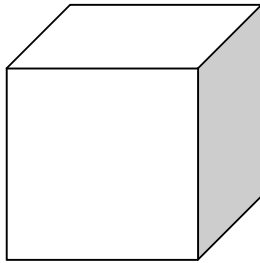
If $b(a+1) = b$, then $ab =$

- A. -1

- B. 0
- C. 1
- E. a
- F. b

Answer:

Q35:



In the rectangular solid above, the three sides shown have areas 12, 15, and 20, respectively. What is the volume of the solid?

- A. 60
- B. 120
- C. 450
- D. 1,800
- E. 3,600

Answer:

Q36:

If x , y , and k are positive numbers such that $(\frac{x}{x+y})(10) + (\frac{y}{x+y})(20) = k$ and if $x < y$, which of the following could be the value of k ?

- A. 10
- B. 12
- C. 15
- D. 18
- E. 30

Answer:

Q37:

If k is an integer and $(0.0025)(0.025)(0.00025) \times 10^k$ is an integer, what is the least possible value of k ?

- A. -12
- B. -6
- C. 0

D. 6
E. 12

Answer:

Answers:

DAEDD, CCEDB, AEADE, ECDBB, ACBDE, ABDAC, DCBBA, DE