

MATH

Q1:

If Henry were to add 5 gallons of water to a tank that is already $\frac{3}{4}$ full of water, the tank would be $\frac{7}{8}$ full. How many gallons of water would the tank hold if it were full?

- A. 25
- B. 40
- C. 64
- D. 80
- E. 96

Answer:

Q2:

The function f is defined for each positive three-digit integer n by $f(n) = 2^x 3^y 5^z$, where x , y and z are the hundreds, tens, and units digits of n , respectively. If m and v are three-digit positive integers such that $f(m) = 9f(v)$, then $m - v = ?$

- A. 8
- B. 9
- C. 18
- D. 20
- E. 80

Answer:

Q3:

At a certain food stand, the price of each apple is ₦ 40 and the price of each orange is ₦ 60. Mary selects a total of 10 apples and oranges from the food stand, and the average (arithmetic mean) price of the 10 pieces of fruit is ₦ 56. How many oranges must Mary put back so that the average price of the pieces of fruit that she keeps is ₦ 52?

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

Answer:

Q4:

Professor Vasquez gave a quiz to two classes. Was the range of scores for the first class equal to the range of scores for the second class?

- (1) In each class, the number of students taking the quiz was 26, and the lowest score in each class was 70.
- (2) In each class, the average (arithmetic mean) score on the quiz was 85.

- 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:

Q5:

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

- (1) $3^x 5^y = 1,125$
- (2) $y = 3$

- 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:

Q6:

If $|d - 9| = 2d$, then $d =$

- A. -9
- B. -3
- C. 1
- D. 3
- E. 9

Answer:

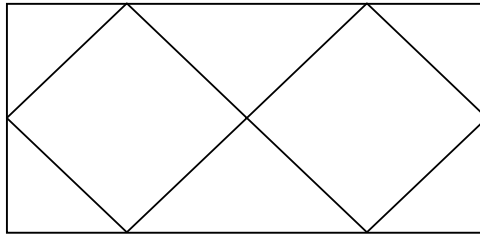
Q7:

There are 11 women and 9 men in a certain club. If the club is to select a committee of 2 women and 2 men, how many different such committees are possible?

- A. 120
- B. 720
- C. 1,060
- D. 1,520
- E. 1,980

Answer:

Q8:



In the figure shown, two identical squares are inscribed in the rectangle. If the perimeter of the rectangle is $18\sqrt{2}$, then what is the perimeter of each square?

- A. $8\sqrt{2}$
- B. 12
- C. $12\sqrt{2}$
- D. 16
- E. 18

Answer:

Q9:

Is the measure of one of the interior angles of quadrilateral ABCD equal to 60 degrees?

- (1) Two of the interior angles of ABCD are right angles.
- (2) The degree measure of angle ABC is twice the degree measure of angle BCD.

- 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:

Q10:

\$10,000 is deposited in a certain account that pays r percent annual interest compounded annually, the amount $D(t)$, in dollars, that the deposit will grow to in t years is given by $D(t) = 10,000 \{1 + (r/100)\}^t$. What amount will the deposit grow to in 3 years?

- (1) $D(t) = 11,000$
- (2) $r = 10$

- 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:

If a and b are integers, is b even?

- (1) $3a + 4b$ is even.
- (2) $3a + 5b$ is even.

- 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:

Q12:

Working alone at its constant rate, machine K took 3 hours to produce $\frac{1}{4}$ of the units produced last Friday. Then machine M started working and the two machines, working simultaneously at their respective constant rates, took 6 hours to produce the rest of the units produced last Friday. How many hours would it have taken machine M , working alone at its constant rate, to produce all of the units produced last Friday?

- A. 8
- B. 12
- C. 16
- D. 24
- E. 30

Answer:

Q13:

If $x + y$ is an integer, is y an integer?

- (1) $x - y$ is an integer.
- (2) $x + 2y$ is an integer.

- 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.
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Answer:

Q14:

A certain computer program generates a sequence of numbers $a_1, a_2, \dots, a_n$ such that $a_1 = a_2 = 1$

and $a_k = a_{k-1} + 2a_{k-2}$ for all integers k such that $3 \leq k \leq n$. If $n > 6$, then $a_7 = ?$

- A. 32
- B. 43
- C. 64
- D. 100
- E. 128

Answer:

Q15:

At a certain bookstore, the regular price of each book is 20 percent less than its list price. If during a sale the price of each book at the store was 15 percent less than its regular price, then the price of a book during the sale was what percent less than its list price?

- A. 30%
- B. 32%
- C. 35%
- D. 38%
- E. 40%

Answer:

Q16:

What is the value of the ratio of x to y^2 ?

- (1) The ratio of x^2 to y is $5/3$.
- (2) The ratio of x to 1 is $5/3$.

- 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.
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- D. **EACH** statement **ALONE** is sufficient.
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Answer:

Q17:

Box W and Box V each contain several blue sticks and red sticks, and all of the red sticks have the same length. The length of each red stick is 18 inches less than the average length of the sticks in Box W and 6 inches greater than the average length of the sticks in Box V. What is the average (arithmetic mean) length, in inches, of the sticks in Box W minus the average length, in inches, of the sticks in Box V?

- A. 3
- B. 6
- C. 12
- D. 18
- E. 24

Answer:

Q18:

If k is a positive integer, is k the square of an integer?

- (1) k is divisible by 4.
- (2) k is divisible by exactly 4 different prime numbers.

- 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:

Q19:

If n is positive, which of the following is equal to $1 / \{ \sqrt{n+1} - \sqrt{n} \}$?

- A. 1
- B. $\sqrt{2n+1}$
- C. $\sqrt{n+1} / \sqrt{n}$
- D. $\sqrt{n+1} - \sqrt{n}$
- E. $\sqrt{n+1} + \sqrt{n}$

Answer:

Q20:

Bob, Mia, and Lou each own a number of shares of stock in a company. How many shares does Lou own?

- (1) Bob and Mia together own a total of 800 shares.
- (2) Bob and Lou together own a total of 500 shares.

- 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:

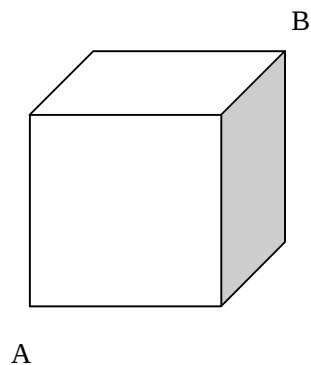
In the xy-plane, what is the x-intercept of a certain line?

- (1) The line passes through the point (0,2).
- (2) The y-intercept of the line is 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:

Q22:



What is the volume of the cube above?

- (1) The surface area of the cube is 600 square inches.
- (2) The length of diagonal AB is $10\sqrt{3}$ inches.

- 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:

$$(0.8)^{-5} / (0.4)^{-4} =$$

- A. $3/32$
- B. $5/64$
- C. $1/2$
- D. 1

E. 2

Answer:

Q24:

By what percent was the price of a certain television set discounted for a sale?

- (1) The price of the television set before it was discounted for the sale was 25 percent greater than the discounted price.
- (2) The price of the television set was discounted by \$60 for the sale.

- 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:

For a certain race, 3 teams were allowed to enter 3 members each. A team earned $6 - n$ points whenever one of its members finished in n th place, where $1 \leq n \leq 5$. There were no ties, disqualifications, or withdrawals. If no team earned more than 6 points, what is the least possible score a team could have earned?

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

Answer:

Q26:

Is $x < y$?

- (1) The ratio of x to y is $7/9$.
- (2) $xy > 0$

- 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:

Q27:

For each landscaping job that takes more than 4 hours, a certain contractor charges a total of r dollars for the first 4 hours plus $0.2r$ dollars for each additional hour or fraction of an hour, where $r > 100$. Did a particular landscaping job take more than 10 hours?

- (1) The contractor charged a total of \$288 for the job.
- (2) The contractor charged a total of $2.4r$ dollars for the job.

- 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:

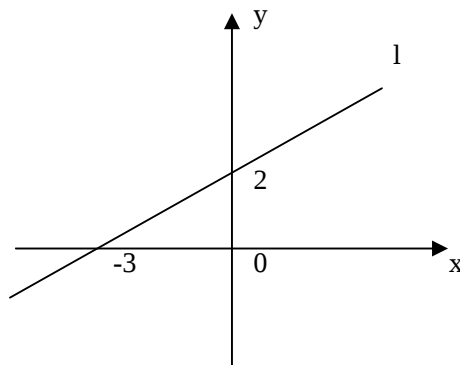
Q28:

In the rectangular coordinate system, points $(4, 0)$ and $(-4, 0)$ both lie on circle C . What is the maximum possible value of the radius of C ?

- A. 2
- B. 4
- C. 8
- D. 16
- E. There is no finite maximum value.

Answer:

Q29:



The graph of which of the following equations is a straight line that is parallel to line l in the figure above?

- A. $3y - 2x = 0$
- B. $3y + 2x = 0$
- C. $3y + 2x = 6$
- D. $2y - 3x = 6$

E. $2y + 3x = -6$

Answer:

Q30:

A train traveled from station X to station Y at a constant speed of 88 feet per second. Is the distance that the train traveled from station X to Station Y greater than 40 miles? (1 mile = 5,280 feet)

- (1) It took less than 45 minutes for the train to travel from station X to Station Y.
- (2) It took more than 42 minutes for the train to travel from station X to Station 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:

Q31:

There are 5 cars to be displayed in 5 parking spaces with all the cars facing the same direction. Of the 5 cars, 3 are red, 1 is blue, and 1 is yellow. If the cars are identical except for color, how many different display arrangements of the 5 cars are possible?

- A. 20
- B. 25
- C. 40
- D. 60
- E. 125

Answer:

Q32:

If x is an integer, is $3x + 7$ even?

- (1) $(x - 5)(x + 1) = 0$
- (2) x is a factor of 105.

- 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:

$$(0.8)^{-5} / (0.4)^{-4} =$$

- A. $3/32$
- B. $5/64$
- C. $1/2$
- D. 1
- E. 2

Answer:

Q34:

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:

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:

If $x^2 + y^2 = 1$, is $x + y = 1$?

- (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:

Q37:

Of the following, which is greatest?

A. $(1/5)^{-2}$

B. $(1/3)^{-2}$

C. 3^{-2}

D. 5^{-2}

E. 2^3

Answer:

Answers:

BDEEA, DEBCD, CDBBB, CEEEE, EDBAD, EBEAB, ADBAC, EA