

MATH.

1

If $25(5^x)=1$ then $x=$

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

Answer:

2

if p , s , and t are positive prime numbers, what is the value of $p^3s^3t^3$?

- (1) $p^3st=728$
- (2) $t=13$

-
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Answer

3

in a certain game played with red chips and blue chips, each red chip has a point value of X and each blue chip has a point value of Y , where $X>Y$ and X and Y are positive integers. If a player has 5 red chips and 3 blue chips, what is the average (arithmetic mean) point value of the 8 chips that the player has?

- (1) The average point value of one red chip and one blue chip is 5.
- (2) The average point value of the 8 chips that the player has is an integer.

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Answer

4

A shipment of 8 television sets contains 2 black-and-white sets and 6 color sets. If 2 television sets are to be chosen at random from this shipment, what is the probability

that at least 1 of the 2 sets chosen will be a black-and-white set?

- A. $\frac{1}{7}$ B. $\frac{1}{4}$ C. $\frac{5}{14}$ D. $\frac{11}{28}$ E. $\frac{13}{26}$

Answer:

5

The tens digit of positive integer X is 3. Is the units digit of X greater than 4?

- (1) The units digit of 2X is less than the units digit of X.
(2) The tens digit of 2X is 7.
-

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Answer

6

$|-4| (|-20| - |5|) =$

- A. -100 B. -60 C. 60 D. 75 E. 100

Answer

7

What is the maximum integer value of M for which $12!/2^M$ is an integer?

- A. 2 B. 4 C. 6 D. 10 E. 12

Answer

8

Can a certain rectangular sheet of glass be positioned on a rectangular tabletop so that it covers the entire tabletop and its edges are parallel to the edges of the tabletop?

- (1) The tabletop is 36 inches wide by 60 inches long.
(2) The area of one side of the sheet of glass is 2400 square inches.
-

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Answer

9

The operation* represents either addition, subtraction, or multiplication of integers, what is the value of $1*0$?

- (1) $0*2=2$
- (2) $2*0=2$

-
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Answer

10

If each of the 12 teams participating in a certain tournament plays exactly one game with each of the other teams, how many games will be played?

- A. 144 B. 132 C. 66 D. 33 E. 23

Answer

11

An equilateral triangle that has an area of $9\sqrt{3}$ is inscribed in a circle. What is the area of the circle?

- A. 6π B. 9π C. 12π D. $9\pi\sqrt{3}$ E. $18\pi\sqrt{3}$

Answer

12

During a 10-week summer vacation, was the average (arithmetic mean) number of books that Carolyn read per week greater than the average number of books that Jacob read per week?

- (1) Twice the average number of books that Carolyn read per week was greater than 5 less than twice the average number of books that Jacob read per week.
- (2) During the last 5 weeks of the vacation, Carolyn read a total of 3 books more than Jacob.

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Answer

13

If X, Y, and Z are positive integers, is $Y > X$?

(1) $Y^2 = XZ$

(2) $Z - X > 0$

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Answer

14

Of the families in City X in 1994, 40 percent owned a personal computer. The number of families in City X owning a computer in 1998 was 30 percent greater than it was in 1994, and the total number of families in City X was 4 percent greater in 1998 than it was in 1994. What percent of the families in City X owned a personal computer in 1998?

- A. 50%
- B. 52%
- C. 56%
- D. 70%
- E. 74%

answer

15

Which of the following expressions can be written as an integer?

- (1) $(82^{1/2} + 82^{1/2})^2$
- (2) $(82)(82^{1/2})$
- (3) $\frac{(82^{1/2})(82^{1/2})}{82}$

- A. None
- B. (1) only
- C. (3) only
- D. (1) and (2)
- E. (1) and (3)

answer

16

From May 1 to May 30 in the same year, the balance in a checking account increased. What was the balance in the checking account on May 30?

- (1) If, during this period of time, the increase in the balance in the checking account had been 12 percent, then the balance in the account on May 30 would have been \$504
- (2) During this period of time, the increase in the balance in the checking account

was 8 percent.

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Answer

17

If N is positive, which of the following is equal to

- $\frac{1}{(n+1)^{1/2} - n^{1/2}}$
- A. 1 B. $(2n+1)^{1/2}$ C. $\frac{(n+1)^{1/2}}{n^{1/2}}$
- D. $(n+1)^{1/2} - n^{1/2}$
- E. $(n+1)^{1/2} + n^{1/2}$

Answer

18

The annual interest rate earned by an investment increased by 10 percent from last year to this year. If the annual interest rate earned by the investment this year was 1 percent, what was the annual interest rate last year?

- A. 1% B. 1.1% C. 9.1% D. 10% E. 10.8%

Answer

19

Color X ink is created by blending red, blue, green, and yellow inks in the ratio 6:5:2:2. what is the number of liters of green ink that was used to create a certain batch of color X ink?

- (1) The amount of red ink used to create the batch is 2 liters more than the amount of blue ink used to create the batch.
- (2) The batch consists of 30 liters of color X ink.

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Answer

20

Of the 32 students in a certain class, 15 are in a music club and 20 are in a dance club. If 10 of the students are not in either club, how many of the students are in only one of the two clubs?

A. 5 B. 9 C. 10 D. 17 E. 25

Answer

21

If P and R are positive, is 25 percent of P equal to 10 percent of R?

(1) R is 150 percent greater than P

(2) P is 60 percent less than R.

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Answer

22

If $X^2 + Y^2 = 1$, is $X + Y = 1$?

(1) $XY = 0$

(2) $Y = 0$

-
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Answer

23

If $A^2 + B^2 = C^2$ for all real numbers A and B, then $(A+B)^2 =$

A. $A^2 + B^2 + C^2$ B. $2A^2 + 2B^2 + C^2$
C. $A^4 + B^4 + C^2$ D. $A^4 + B^4 + 2A^2B^2 + C^2$

Answer

24

Each week John earns X dollars per hour for the first 40 hours that he works that week and Y dollars for each additional hour. How much does John earn per hour for the first 40 hours?

(1) $Y=15X$

(2) If John works 45 hours in a week, he earns a total of \$570 that week.

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Answer

25

Machine A, operating alone at its constant rate, produces 500 feet of a particular fiber in 2 hours. Machine B, operating alone at its constant rate, produces 500 feet of the same fiber in 3 hours. Machine C, operating alone at its constant rate. Produces 500 feet of the same fiber in 5 hours. How many hours will it take machines A, B, and C, operating together at their respective constant rates, to produce 1000 feet of the fiber?
A. 60/31 B. 15/7 C. 25/11 D. 10/2 E. 20/3

Answer

26

Does the decimal equivalent of P/Q , where P and Q are positive integers, contain only a finite number of nonzero digits?

(1) $P > Q$

(2) $Q = 8$

-
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Answer

27

$\frac{(1/2)^{-2}}{(2)^{-2}}$

$(2)^{-2}$

A. 16 B. 8 C. 4 D. 1/8 E. 1/16

Answer

28

If $k = -1$, which of the following is (are) true?

1. $k^k = k$ 2. $|k| = -k$ 3. $k^0 = -k$

A. 1 only B. 1 and 2 only C. 1 and 3 only

D. 2 and 3 only E. 1, 2, and 3.

Answer

29

A total of 22 men and 26 women were at a party, and the average (arithmetic mean) age of all of the adults at the party was exactly 35 years. If the average age of the men was exactly 38 years, which of the following was closest to the average age, in years, of the women?

A. 31 B. 31.5 C. 32 D. 32.5 E. 33

Answer

30

A parent established a college fund for his daughter. Each year the parent made a contribution to the fund, and each year he increased his contribution by a constant amount. If he made a contribution of \$800 in the first year, by what amount did the parent increase his contribution to the fund each year?

- (1) The parent's contribution to the fund in the 18th year was \$7600.
- (2) The parent's contribution to the fund in the 7th year was twice what it was in the 3rd year.

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Answer

31

Each side of a certain parallelogram has length 6. If the area of the parallelogram is 18, which of the following is the measure of one of its angles?

A. 30' B. 45' C. 60' D. 90' E. 120'

Answer

32

If $\frac{1}{4}$ of the larger of two numbers is greater than 5 times the smaller of the same two numbers, is the smaller number less than 4?

- (1) The larger number is greater than 70.
- (2) The larger number is less than 80.

-
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Answer

33

Anne traveled from City A to City B in 4 hours, and her speed was between 25 miles per hour and 45 miles per hour. John traveled from City A to City B along the same route in 2 hours, and his speed was between 45 miles per hour and 60 miles per hour. Which of the following could be the distance, in miles, from City A to City B?

A. 95 B. 115 C. 125 D. 160 E. 180

Answer

34

A certain carton holds fewer than 50 books. What is the number of books in the carton?

- (1) The books in the carton can be divided into 3 stacks of X books each, with 2 books left over.
- (2) The books in the carton can be divided into Y stacks of 7 books each, with 2 books left over.

-
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Answer

35

What is the value of $x^2yz + xy^2z + xyz^2$

(1) $x + y + z = 18$

(2) $xyz = 10$

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Answer

36

Mary passed a certain gas station on a highway while traveling west at a constant speed of 50 miles per hour. Then, 15 minutes later, Paul passed the same gas station while traveling west at a constant speed of 60 miles per hour. If both drivers maintained their speeds and both remained on the highway for at least 2 hours, how long after he passed the gas station did Paul catch up with Mary?

- A. 30 min
- B. 45 min
- C. 1 hr
- D. 1 hr 15 min
- E. 1 hr 30 min

answer

37

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

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

Answer

Answer:

AACED,CDEAC,CACAE,AECDB,DEDCA,EAEDD,ABBEC,DE