

MEAN

Question

2. A convenience store currently stocks 48 bottles of mineral water. The bottles have two sizes of either 20 or 40 ounces each. The average volume per bottle the store currently has in stock is 35 ounces. How many 40 ounce bottles must be sold for the average volume per bottle to be reduced to 25 ounces if no 20 ounce bottles are sold?
- 10 20 30 32 34

RANGE

Question

2. Beginning in January of last year, Carl made deposits of \$120 into his account on the 15th of each month for several consecutive months and then made withdrawals of \$50 from the account on the 15th of each of the remaining months of last year. There were no other transactions in the account last year. If the closing balance of Carl's account for May of last year was \$2,600, what was the range of the monthly closing balances of Carl's account last year?
- (1) Last year the closing balance of Carl's account for April was less than \$2,625.
(2) Last year the closing balance of Carl's account for June was less than \$2,675.

Question

14. Set R contains five numbers that have an average value of 55. If the median of the set is equal to the mean, and the largest number in the set is equal to 20 more than three times the smallest number, what is the largest possible range for the numbers in the set?
- 1) 78 2) 77 3) 66 4) 55 5) 52

STANDARD DEVIATION

Question

6. Set A consists of all even integers between 2 and 100, inclusive. Set X is derived by reducing each term in set A by 50, set Y is derived by multiplying each term in set A by 1.5, and set Z is derived by dividing each term in set A by -4 . Which of the following represents the ranking of the three sets in descending order of standard deviation?
- (A) X, Y, Z (B) X, Z, Y (C) Y, Z, X (D) Y, X, Z (E) Z, Y, X

Question

11. The mean score of a class on a test was 60 and the standard deviation was 15. If Elena's score was within 2 standard deviations of the mean, what is the lowest score she could have received?

Question

12. If $y = ax + b$, and if the standard deviation of x series is 'S', what is the standard deviation of y series?

PRIME ODD EVEN

Question

1. If x , y , and z are integers and $xy + z$ is an odd integer, is x an even integer?
(1) $xy + xz$ is an even integer (2) $y + xz$ is an odd integer

Question

9. Is the prime number p equal to 37?
(1) $p = n^2 + 1$ (2) p^2 is greater than 200.

FACTORS/LCM/HCF

Question

13. If the prime numbers p and t are the only prime factors of the integer m , is m a multiple of $p^2 t$?
(1) m has more than 9 positive factors (2) m is a multiple of p^3

DIVISIBILITY/REMAINDER

Question

10. What is the remainder when $X^4 + Y^4$ divide by 5?
(1) $X - Y$ divided by 5 gives remainder 1 (2) $X + Y$ divided by 5 gives remainder 2

Question

15. If N is a positive integer, is $(N^3 - N)$ divisible by 4?
(1) $n = 2k + 1$, where K is an integer. (2) $n^2 + n$ is divisible by 6

SEQUENCE/SERIES

Question

15. The sum of first $N-1$ terms of AP is either zero or positive, but sum of first N terms is negative. What is the value of N ?
(1) Common difference is -4 and 7th term is last positive term.
(2) 25 is first term and there are 7 positive terms and all are integers.

EXPONENTS/FORMULAS

Question

5. If two of the four expressions $x + y$, $x + 5y$, $x - y$, and $5x - y$ are chosen at random, what is the probability that their product will be of the form of $x^2 - (by)^2$, where b is an integer?
a. $1/2$ b. $1/3$ c. $1/4$ d. $1/5$ e. $1/6$

MISCELLANEOUS

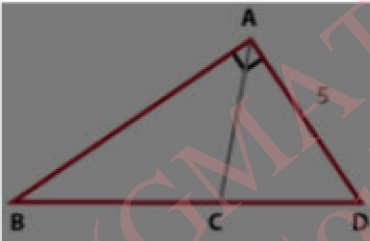
Question

6. The symbol $*$ represents one of the four arithmetic operations: addition, subtraction, multiplication, and division. Is $(5 * 6) * 2 = 5 * (6 * 2)$?
(1) $5 * 6 = 6 * 5$ (2) $2 * 0 = 2$

GEOMETRY+ COORDINATE

Question

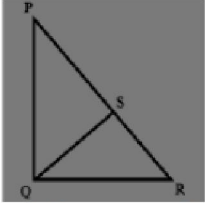
1. If angle BAD is a right angle, what is the length of side BD ?



- (1) AC is perpendicular to BD
- (2) $BC = CD$

Question

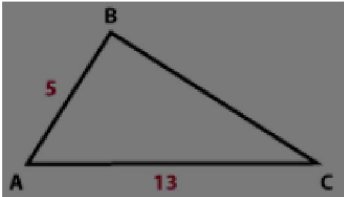
6. In the diagram, triangle PQR has a right angle at Q and a perimeter of 60. Line segment QS is perpendicular to PR and has a length of 12. $PQ > QR$. What is the ratio of the area of triangle PQS to the area of triangle RQS ?



- $3/2$
- $7/4$
- $15/8$
- $16/9$
- 2

Question

5. What is the length of segment BC ?



- (1) Angle ABC is 90 degrees.
- (2) The area of the triangle is 30.

Question

13. In Quadrilateral WXYZ, is XY perpendicular to YZ? (1) WXY is a right angle (2) WZY is a right angle

WORD PROBLEMS

Question

18. A certain one-day seminar consisted of a morning session and an afternoon session. If each of the 128 people attending the seminar attended at least one of the two sessions, how many of the people attended the morning session only.
- 1) $\frac{3}{4}$ of the people attended both sessions
 - 2) $\frac{7}{8}$ of the people attended the afternoon session

Question

46. The table gives three factors to be considered when choosing an Internet service provider and the percent of the 1,200 respondents to a survey who cited that factor as important. If 30 percent of the respondents cited both "user-friendly" and "fast response time", what is the maximum possible number of respondents who cited "bargain prices," but neither "user-friendly" nor "fast response time?"
- | | |
|--------------------|-----|
| User-friendly | 56% |
| Fast response time | 48% |
| Bargain prices | 42% |
- A. 312 B. 336 C. 360 D. 384 E. 420

Question

90. A certain city with a population of 1,32,000, is divided into 11 voting districts, and no district is to have a population that is more than 10% greater than the population of any other district. What is the minimum possible population that the least populated district could have?
- A) 10700 B) 10800 C) 10900 D) 11000 E) 11100

Question

107. Robin split a total of \$24,000 between 2 investments, X and Y. If investment X earns 7% simple annual interest, how much of that total did Robin put into investment Y?
1. Each investment earns the same dollar amount of the interest annually.
 2. Investment X earns 5 percent simple annual interest.
108. At least 100 students at a certain school study Japanese. If 4 % of the students at school who study French also study Japanese, do more students at school study French than Japanese?
- (1) 16 students at school study both French and Japanese
 - (2) 10 % of students at school who study Japanese also study French.

Question

120. Store S sold a total of 90 copies of a certain book during the last week, and it sold different numbers of copies on any two of the days. If for the seven days Store S sold the greatest number of copies on Saturday and the second greatest number of copies on Friday, did store S sell more than 11 copies on Friday?
- (1) Last week Store S sold 8 copies of the book on Thursday.
 - (2) Last week Store S sold 38 copies of the book on Saturday.

Question

126. Linda put an amount of money into each of two new investments, A and B that pay simple annual interest. If the annual interest rate of investment B is $1\frac{1}{2}$ times that of investment A, what amount did Linda put into investment A?
- (1) The interest for 1 year is \$50 for investment A and \$150 for investment B
 - (2) The amount that Linda put into investment B is twice the amount that she put into investment A

Question

132. An investment of d dollars at k percent simple annual interest yields \$600 over a 2 year period. In terms of d , what dollar amount invested at the same rate will yield \$24,000 over a 3 year period?
- A. $(2d)/3$ B. $(3d)/4$ C. $(4d)/3$ D. $(3d)/2$ E. $(8d)/3$