

CAT workshop- Algebra- Part 1

Question: Total integer pair(s) (x, y) satisfying the equation $x + y = xy$ is/are

- 1) 0 2) 1 3) 2 4) 3

Question: How many positive integer pairs (a, b) satisfy the equation $ab = a + b + 20$?

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

Question: In a broken calculator, the keys '+' and 'x' have their functions switched. For how many ordered pairs (a, b) of integers will it correctly calculate 'a + b' using the labeled '+' key?

- A. 0 B. 1 C. 2 D. None of these

Question: If the difference between the roots of the equation $x^2 - 5x + 2k = 1$ is 3, then find the value of k.

- A. 2.2 B. 2.5 C. 4.2 D. 5.2

Question: When the sum of two natural numbers is multiplied by each number separately, the products obtained are 2418 and 3666. What is the difference between the two numbers?

1. 16 2. 22 3. 26 4. 35

Question: If p, q and r are the roots of the cubic equation $x^3 - 3x^2 + 5x + k = 2$ and $pqr = 1$, then find the value of k.

- (a) 0 (b) 3 (c) 2 (d) 1

Question: If the polynomial $ax^4 + bx^3 + cx^2 + dx + e$ has the property that the product of its roots is $1/3^{\text{rd}}$ of the sum taking two roots at a time, then find the relationship between e and c.