

- If $\frac{37}{13} = 2 + \frac{1}{x + \frac{1}{y + \frac{1}{z}}}$ where, x, y, z are positive integers find x, y, z.

(A) (2, 1, 5) (B) (1, 2, 5) (C) (1, 5, 2) (D) (5, 2, 1)
- The sum of two numbers is 528 and their H.C.F. is 33. Find the number of pairs of such numbers satisfying the above condition? How many such pair are :

(A) 3 (B) 2 (C) 4 (D) 6
- If a679b is a five digit number that is divisible by 72. The value of a & b are :

(A) (2, 3) (B) (5, 2) (C) (3, 2) (D) (7, 2)
- What is highest power of 3 in 80!?

(A) 26 (B) 32 (C) 36 (D) 42
- How many number of zero's at the end of 100!?

(A) 12 (B) 26 (C) 32 (D) 24
- What will be the smallest positive integer 'b' for which $7 + 7b + 7b^2$ is a fourth power?

(A) 16 (B) 18 (C) 22 (D) 14
- What is the units digit of $1 + 9 + 9^2 + 9^3 + \dots + 9^{1989}$:

(A) 1 (B) 0 (C) 2 (D) 3
- The product of four distinct positive integers a,b,c,d is 8!. The number also satisfy $ab + a + b + 1 = 323$, $bc + b + c + 1 = 399$. What is d?

(A) 7 (B) 8 (C) 9 (D) 6
- If $N = 7^{p+4} \cdot 5^q \cdot 2^3$ is a perfect cube, where 'p' and 'q' are positive integers, the smallest possible value of 'p+q' :

(A) 5 (B) 2 (C) 8 (D) 6
- Let $a = \frac{1^2}{1} + \frac{2^2}{3} + \frac{3^2}{5} + \dots + \frac{1001^2}{2001}$, $b = \frac{1^2}{3} + \frac{2^2}{5} + \frac{3^2}{7} + \dots + \frac{1001^2}{2003}$. then the Integer closest to 'a - b' is :

(A) 500 (B) 501 (C) 999 (D) 1000
- Show that 10101 is a composite in any base :
- Find two rational number with denominators 11 and 13, respectively such that their sum is $\frac{7}{143}$:
- Show that $2^{105} + 3^{105}$ is divisible by 7, 11, 25 :
- The number which is four more than the square of 625 has exactly two prime factors. Determine what they are:
- If n is positive integer such that 2n has 28 positive divisors and 3n has 30 positive divisors, then how many divisors does 6n have?