Questions

Thursday, March 25, 2021 11:38 AM

Ex: $1396 \times 1396 = ?$

1396
$\times 1396$

$\Rightarrow (1396)^2$

$\Rightarrow (1400-4)^2$

$\Rightarrow (1400)^2 - 2(4)(1400) + (4)^2$

$\Rightarrow 1960000 - 11200 + 16$

$\Rightarrow 1948816.$

Ex: $(796 \times 796 - 204 \times 204) = ?$

$a = 796, b = 204.$

$(a^2 - b^2) = (a+b)(a-b)$

$= (796 + 204)(796 - 204)$

$= (1000)(592) \Rightarrow 592000$ //

Ex: Find the least value of * for which

*: 7*5462 is divisible by 9.

$\rightarrow (7 + x + 5 + 4 + 6 + 2) \Rightarrow (24 + x) = 27$ which is divisible by 9.

$\Rightarrow$ 735462.

Ex: Find least value of * for $\underline{4}\underline{8}\underline{3}\underline{2}\underline{*}\underline{1}\underline{8}$ is divisible by 11

divisible by 11.

→ $(8+x+3+4) - (1+2+8)$

$\Rightarrow (x+15) - (11)$

$\Rightarrow x+4 \Rightarrow 11$ $\boxed{x=7}$ 4837218 divisible by 11 //

Ex simplify

$$\frac{75g \times 75g \times 75g + 211 \times 211 \times 211}{75g \times 75g - 75g \times 211 + 211 \times 211} = (9)$$

→ $a = 75g,\ b = 211$

$$\frac{(a^3+b^3)}{(a^2-ab+b^2)} = \frac{(a+b)(a^2-ab+b^2)}{(a^2-ab+b^2)} = a+b$$

$= 75g + 211$

$= 1000$ //

Ex 72519×9999

$\Rightarrow 72519(10000-1)$

$\Rightarrow 725190000 - 72519$

$\Rightarrow 725117481$ //

Ex sum of first 45 natural numbers

$= 1+2+3 \ldots 45$

Ex: sum of first 45 natural numbers

P.P $S_n = \frac{n}{2}[2a + (n-1)d]$ $\boxed{\frac{n}{2}(a+l)}$

$= \frac{45}{2}[2(1) + (45-1)(1)]$

$= \frac{45}{2}[2 + 44] = \frac{45}{2} \times 46$ $= 45 \times 23$

$= 45(20+3)$

$= 900 + 135$

$= 1035$ //

Ex: sum of all two digit numbers divisible by 5.

10, 15, 20 95

$\because n = 95 \Rightarrow a + (n-1)d$

$= 10 + (n-1)5 = 95$

$\Rightarrow (n-1)5 = 85$

$\Rightarrow 5n - 5 = 85$

$\Rightarrow 5n = 90$

$n = 90/5 = 18.$

$\frac{n}{2}(a+l) \Rightarrow \frac{18}{2}(10 + 95) \Rightarrow 9 \times (105)$

$\Rightarrow 945$ //

Ex: How many terms G.P. 3, 6, 12, 24 .... 384?

ans. (8)

Ex: $2 + 2^2 + \dots\dots 2^9 = ?$

$r = \frac{2^2}{2} = 2 \qquad n = 9$

$S_n = \frac{a(r^n - 1)}{(r-1)} = \frac{2(2^9 - 1)}{(2-1)} = 2(512 - 1)$

$= 2(511)$

$= 1022$ //