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CLASS - 4

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SUB -MATHS

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BASED ON N.C.E.R.T PATTERN:-

CH – PATTERN

Read example and try to understand .

PATTERNS IN ADDITION

Sum of three consecutive numbers.

$$\begin{aligned} 0 + 1 + 2 &= 3 \\ 1 + 2 + 3 &= 6 \\ 2 + 3 + 4 &= 9 \\ 3 + 4 + 5 &= 12 \\ 4 + 5 + 6 &= 15 \\ 5 + 6 + 7 &= 18 \dots \text{etc.} \end{aligned}$$

PATTERNS IN DIVISION

1×2	$15 \times 15 = 225$
2×3	$25 \times 25 = 625$
3×4	$35 \times 35 = 1225$
4×5	$45 \times 45 = 2025 \dots \text{etc.}$

a $14 \div 7 = 2$
 $140 \div 7 = 20$
 $1400 \div 7 = 200$
 $14000 \div 7 = 2000$
 $140000 \div 7 = 20000$

b $632 \div 100$ - Quotient $\rightarrow 6$
Remainder $\rightarrow 32$
 $740 \div 100$ - Quotient $\rightarrow 7$
Remainder $\rightarrow 40$
 $1947 \div 100$ - Quotient $\rightarrow 19$
Remainder $\rightarrow 47$
 $12564 \div 100$ - Quotient $\rightarrow 125$
Remainder $\rightarrow 64$

c $111 \div 3 = 37$
 $222 \div 6 = 37$
 $333 \div 9 = 37$
Observe the pattern and write, the missing number
 $777 \div \dots = 37$
 $\dots \div 27 = 37$

d $11 \div 11 = 1$
 $121 \div 11 = 11$
 $1221 \div 11 = 111$
 $12221 \div 11 = 1111$
Observe them and write, the missing number
 $122221 \div 11 = \dots$
 $\dots \div 11 = 11111111$

While observing the above pattern obtained by addition of 3 consecutive we get following facts :

a $2 \times \text{middle number} = \text{sum of extreme numbers e.g.}$

$$2 \times 1 = 0 + 2 = 2$$

$$2 \times 2 = 1 + 3 = 4$$

$$2 \times 3 = 2 + 4 = 6 \dots \text{etc.}$$

Sums are multiples of 2

b $3 \times \text{middle number} = \text{sum of the numbers e.g.}$

$$3 \times 1 = 0 + 1 + 2 = 3$$

$$3 \times 2 = 1 + 2 + 3 = 6$$

$$3 \times 3 = 2 + 3 + 4 = 9 \dots \text{etc.}$$

Sums are multiples of 3

Sum of four consecutive numbers.

We observe following facts from the addition of four consecutive numbers

(a) Sum of the middle numbers = sum of extreme numbers e.g.,

$$2 + 3 = 1 + 4 = 5$$

$$3 + 4 = 2 + 5 = 7 \dots \text{etc.}$$

(b) All the sums are even.

(c) All the sums differ by 4 if they are taken in order.

$$1 + 2 + 3 + 4 = 10$$

$$2 + 3 + 4 + 5 = 14$$

$$3 + 4 + 5 + 6 = 18 \dots \text{etc.}$$



PATTERNS IN MULTIPLICATION

We can observe following facts from the pattern. The product of two same having all the digits as 1 can be done with the help of steps given below.

$$1 \times 1 = 1$$

$$11 \times 11 = 121$$

$$1111 \times 1111 = 1234321 \dots \text{etc.}$$

(a) Count the number of digits in the numbers to be multiplied and

(b) Write predecessors of the digit obtained above in left and right 1 at both ends.

The number so formed is the product.

$$15 \times 15 = 225$$

$$25 \times 25 = 625$$

$$35 \times 35 = 1225$$

$$45 \times 45 = 2025 \dots \text{etc.}$$