

25/06/21
c.w

5(1)

1) 1×5 divisible by 3
 $\Rightarrow 1 \times 5$ is divisible by 3

$$= 1 + x + 5 = 6 + x$$

$$\Rightarrow x = 3$$

~~2~~ x may be $-0, 3, 6, \text{etc.}$

2) 31×5 divisible by 3

$$\Rightarrow 31 + x + 5$$

$$= 93 + x$$

$$\Rightarrow x = 0, 3, 6 \text{ or } 9$$

3) 28×6 a multiple of 3,

$$= 28 + x + 6$$

$$= 162 + x$$

$$\Rightarrow x = 5, 2 \text{ or } 8$$

4. $24 + x$ divisible by 3?

= $24 + x$ divisible by 6

$$= 24 + x = 24 + x$$

$$= x = 0 \text{ or } 6$$

$$= 24 + 0 = 24 (3 \times 8)$$

$$= 24 + 6 = 30 (3 \times 10)$$

~~or~~

5. $3 + 26$ a multiple of 6?

$$= 3 + x + 26$$

$$= 3 + x + 2 + 6 \text{ a multiple of } 3$$

$$= 11 + x \text{ is a multiple of } 3$$

$$= 11 + x = 0, 3, 6, 9, 12, 15, 18, 21$$

$$= x = -11 + -8, -5, -2, 1, 4, 7, 10,$$

$$= 13, x = 1, 4 \text{ or } 7.$$

7) 9142x a multiple of 49

= $9 + 1 + 4 + 2 + x$ is multiple of 4

= $16 + x = 0, 4, 8, \dots$

= $x = -8, -4, 0, 4, 8$

= $x = 4, 8$

8) 7x34 divisible by 99

= $7 + x + 3 + 4$ is multiple of 9

= $14 + x = 0, 9, 18, 27$

= $x = -1, 4, 13,$

= $x = 4$

9) 5x555 a multiple of 99

= $5 + x + 5 + 5 + 5 = 20 + x$

= It is multiple by 9

= The sum should be divisible by 9
 $x \Rightarrow 7$

10) 3×2 divisible by 11

3×2 a multiple of 11

Sum of even placed digits - Sum of odd placed digits = 0, 11, 22

$$x - (3 + 2) = 0, 11, 22 \dots$$

$x - 5$ is multiple of 11

$$x - 5 = 0$$

$$x = 5$$

11) 5×2 a multiple of 11

Sum of the digits in odd place =
 $5 + 2 = 7$

Difference of the sum of the digits in even places and in odd places = $x - 7$

$$x - 7 = 0, 11, 22$$

$$x = 7, 18, 29$$

$$x = 7$$