Q1) 1x5 divisible by 3?

Ans → 1x5 is divisible by 3

⇒ 1 + x + 5 is a multiple of 3

⇒ 6 + x = 0, 3, 6, 9,

⇒ x = -6, -3, 0, 3, 6, 9

since x is a digit

x = 0, 3, 6 or 9

Q2) 31x5 divisible by 3?

Ans → 31x5 is divisible by 3

⇒ 3 + 1 + x + 5 is a multiple of 3

⇒ 9 + x = 0, 3, 6, 9

⇒ x = -9, -6, -3, 0, 3, 6, 9

since x is a digit

x = 0, 3, 6 or 9

Q3) 28x6 a multiple of 3?

Ans → 28x6 is a multiple of 3

2 + 8 + x + 6 is a multiple of 3

⇒ 16 + x = 0, 3, 6, 9, 12, 15, 18

⇒ x = -18, -15, -12, 0, 2, 5, 8

since, x is a digit = 2, 5, 8

Q4.) 24x divisible by 6?
Ans.) 24x is divisible by 6
⇒ 2+4+x is a multiple of 6
⇒ 6+x = 0, 6, 12
⇒ x = -6, 0, 6
since, x is a digit
x = 0, 6

Q5.) 3x26 a multiple of 6?
Ans.) 3x26 is a multiple of 6
3+x+2+6 is a multiple of 3
⇒ 11+x = 0, 3, 9, 12, 15, 18, 21
⇒ x = -11, -8, -5, -2, 1, 4, 7, 10
since, x is a digit
x = 1, 4 or 7

Q6.) 42x8 divisible by 4?
Ans.) 42x8 is divisible by 4
⇒ 4+2+x+8 is a multiple of 2
⇒ 14+x = 0, 2, 4, 6, 8
⇒ x = -8, -6, -4, -2, 2, 4, 6, 8
since, x is a digit 2, 4, 6, 8

Q7.) 9142x a multiple of 4?
Ans.) 9142x is multiple of 4
⇒ 9+1+4+2+x is a multiple of 4
⇒ 16+x = 0, 4, 8
x = -8, -4, 0, 4, 8
since, x is a digit

Q8) 7x34 divisible by 9?

Ans) 7x34 is multiple of 9

$\Rightarrow 7+x+3+4$ is a multiple of 9

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

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

since x is a digit

$x = 4$

Q9) 5x555 a multiple of 9?

Ans) Sum of the digits of 5x555

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

It is multiplied by 9

The sum should be divisible by 9

value of x will be 7

Q10) 3x2 divisible by 11?

Ans) Sum of the digit in even place = x

and sum of the digits in odd place = 3+2 = 5

Difference of the sum of the digits in even places and in odd places = x - 5

3x2 is a multiple of 11

$\Rightarrow x - 5 = 0, 11, 22$

$\Rightarrow x = 5, 16, 27$

since x is a digit $x = 5$

Q11) 5x 2 a multiple of 11?

Ans) Sum of a digit in even place = x

and sum of the digit in odd place = 5+2 = 7

Difference of the sum of the digits in even place and in odd place = x - 7, 5x2 is a multiple of 11 $\Rightarrow x - 7 = 0, 11, 22$

$\Rightarrow x = 7, 18, 29$

since x is a digit

$x = 7$