

NCERT SOLUTIONS FOR CLASS-8 MATHS CHAPTER-16 PLAYING WITH NUMBERS EX-16.2

Q1. If $21y^5$ is a multiple of 9, where y is a digit, what is the value of y?

Ans: Since 21y5 is a multiple of 9.

Therefore according to the divisibility rule of 9, the sum of all the digits should be a multiple of 9.

$$\therefore 2+1+y+5=8+y$$

$$\Rightarrow$$
 8 + $y = 9$

$$\Rightarrow y = 1$$

Since $21y^5$ is a multiple of 9.

Q2. If 31z⁵ is a multiple of 9, where z is a digit, what is the value of z? You will find that there are *two* answers for the last problem. Why is this so?

Ans: Since 31z5 is a multiple of 9.

Therefore according to the divisibility rule of 9, the sum of all the digits should be a multiple of 9.

$$\therefore 3+1+z+5=9+z$$

$$\Rightarrow 9+z=9$$

$$\Rightarrow z = 0$$

If
$$3+1+z+5=9+z$$

$$\Rightarrow 9+z=18$$

$$\Rightarrow z = 9$$

Hence o and 9 are two possible answers.

Q3. If 24x is a multiple of 3, where x is a digit, what is the value of x?

(Since 24x is a multiple of 3, its sum of digits 6 + x is a multiple of 3; so 6 + x is one of these numbers: 0, 3, 6, 9, 12, 15, 18,But since x is a digit, it can only be that 6 + x = 6 or 9 or 12 or 15. Therefore, x = 0 or 3 or 6 or 9. Thus, x can have any of (four different values.)

Ans: Since 24x is a multiple of 3.

Therefore according to the divisibility rule of 3, the sum of all the digits should be a multiple of 3.

$$\therefore 2+4+x=6+x$$

Since x is a digit.

$$\Rightarrow$$
 6+x=6 \Rightarrow x=0

$$\Rightarrow$$
 6+x=9 \Rightarrow x=3

$$\Rightarrow$$
 6+x=12 \Rightarrow x=6

$$\Rightarrow$$
 6+x=15 \Rightarrow x=9

Thus, x can have any of four different values.

Q4. If 31z⁵ is a multiple of 3, where z is a digit, what might be the values of z?

Ans: Since $31z^5$ is a multiple of 3.

Therefore according to the divisibility rule of 3, the sum of all the digits should be a multiple of 3.

Since z is a digit.

$$\therefore 3+1+z+5=9+z$$

$$\Rightarrow 9+z=9 \Rightarrow z=0$$

If
$$3+1+z+5=9+z$$

$$\Rightarrow 9 + z = 12 \Rightarrow z = 3$$

If
$$3+1+z+5=9+z$$

$$\Rightarrow 9 + z = 15 \Rightarrow z = 6$$

If
$$3+1+z+5=9+z$$

$$\Rightarrow 9 + z = 18 \Rightarrow z = 9$$

Hence 0, 3, 6 and 9 are four possible answers.

******* END *******