

# Mathematics

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(Chapter – 2) (Polynomials)(Exemplar Problems)

(Class – IX)

## Exercise 2.3

### Question 22:

If  $x + 1$  is a factor of  $ax^3 + x^2 - 2x + 4a - 9$ , find the value of  $a$ .

### Answer 22:

We have  $p(x) = ax^3 + x^2 - 2x + 4a - 9$ ,  $g(x) = x + 1$

Put  $g(x) = 0$

$$\Rightarrow x + 1 = 0$$

$$\Rightarrow x = -1$$

According to factor theorem if  $g(x)$  is a factor of  $p(x)$ , the remainder  $p(-1)$  should be zero.

$$\text{Remainder} = p(-1) = 0$$

$$\Rightarrow a(-1)^3 + (-1)^2 - 2(-1) + 4a - 9 = 0$$

$$\Rightarrow -a + 1 + 2 + 4a - 9 = 0$$

$$\Rightarrow 3a - 6 = 0$$

$$\Rightarrow 3a = 6$$

$$\Rightarrow a = 2$$

