STD – 9 MATHS

CHAPTER - 2

polynomials

EXERCISE - 2.3 Q : 1

1. Find the remainder when $x^3 + 3x^2 + 3x + 1$ is divided by

(i) X + 1

➢ $x + 1 = 0$

$\Rightarrow x = -1$

∴ **Remainder:**

$p(-1) = (-1)^3 + 3(-1)^2 + 3(-1) + 1$

$= -1 + 3 - 3 + 1$

$= 0$

(ii) $x\frac{-1}{2}$

➢ $x\ \frac{-1}{2} = 0$

$\Rightarrow x = \frac{1}{2}$

∴ Remainder:

$= p(\frac{1}{2}) = (\frac{1}{2})^3 + 3(\frac{1}{2})^2 + 3(\frac{1}{2}) + 1$

$$= \left(\frac{1}{8}\right) + \left(\frac{3}{4}\right) + \left(\frac{3}{2}\right) + 1$$

$$= \frac{27}{8}$$

(iiii) x

➢ **X = 0**

∴ **Remainder:**

$$p(0) = (0)^3 + 3(0)^2 + 3(0) + 1$$

$$= 1$$

(iv) $X + \pi$

➢ $x + \pi$

$= 0$

$\Rightarrow x = -\pi$

∴ Remainder:

$p(0) = (-\pi)^3 + 3(-\pi)^2 + 3(-\pi) + 1$

$= -\pi^3 + 3\pi^2 - 3\pi + 1$

(v) $5 + 2x$

➢ $5 + 2x = 0$

$2x = -5$

$\Rightarrow x = \frac{-5}{2}$

∴ **Remainder:**

$= (\frac{-5}{2})^3 + 3(\frac{-5}{2})^2 + 3(\frac{-5}{2}) + 1$

$$= \left(\frac{-125}{8}\right) + \left(\frac{75}{4}\right) - \left(\frac{15}{2}\right) + 1$$

$$= \frac{-27}{8}$$

Thanks

For watching