

$$1 \text{ (i)} \quad 5x - 4x^2 + 3$$

Put $x=0$

$$5 \times 0 - 4 \times 0^2 + 3$$

$$= 3$$

$$\text{(ii)} \quad \text{Put } x = -1$$

$$5(-1) - 4(-1)^2 + 3$$

$$= -5 - 4 + 3$$

$$= -6$$

$$\text{(iii)} \quad \text{Put } x = 2$$

$$5 \times 2 - 4 \times 2^2 + 3$$

$$= 10 - 16 + 3$$

$$= -3$$

$$2 \text{ (i)} \quad p(y) = y^2 - y + 1$$

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

$$= 1$$

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

$$= 1$$

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

$$= 4 - 2 + 1$$

$$= 3$$

$$2 \text{ (ii)} \quad p(t) = 2 + t + 2t^2 - t^3$$

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

$$= 2$$

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

$$= 5 - 1$$

$$= 4$$

$$p(2) = 2 + 2 + 2 \times 2^2 - 2^3$$

$$= 12 - 8$$

$$= 4$$

$$2 \text{ (iii)} \quad p(x) = x^3$$

$$p(0) = 0^3$$

$$= 0$$

$$p(1) = 1^3$$

$$= 1$$

$$p(2) = 2^3$$

$$= 8$$

$$2 \text{ (iv)} \quad p(x) = (x-1)(x+1)$$

$$p(0) = (0-1)(0+1)$$

$$= -1 \times 1$$

$$= -1$$

$$p(1) = (1-1)(1+1)$$

$$= 0 \times 2$$

$$= 0$$

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

$$= 1 \times 3$$

$$= 3$$

$$3 \text{ (i)} \quad p(x) = 3x + 1, \quad x = -\frac{1}{3}$$

$$p\left(-\frac{1}{3}\right) = 3 \times -\frac{1}{3} + 1$$

$$= -1 + 1$$

$$= 0$$

$\therefore -\frac{1}{3}$ is zero of $p(x)$

$$3 \text{ (ii)} \quad p(x) = 5x - \pi$$

$$p\left(\frac{4}{5}\right) = 5 \times \frac{4}{5} - \pi$$

$$= 4 - \pi$$

$$\neq 0$$

$\frac{4}{5}$ is zero of $p(x)$