STD – 9 MATHS

CHAPTER - 2

polynomials

**EXERCISE - 2.4 Q:5(3,4)** 

(iii) 
$$x^3 + 13x^2 + 32x + 20$$

- $\triangleright$  Let p(x) =  $x^3 + 13x^2 + 32x + 20$
- ➤ Factors of 20 are ±1, ±2, ±4, ±5, ±10 and ±20
- ➤ By trial method, we find that p(-1) = 0
- So, (x + 1) is factor of p(x)
  Now,

$$p(x) = x^{3} + 13x^{2} + 32x + 20$$

$$p(-1) = (-1)^{3} + 13(-1)^{2} + 32(-1) + 20$$

$$= -1 + 13 - 32 + 20$$

$$= 0$$

Therefore, (x + 1) is the factor of p(x)

## Now, Dividend = Divisor × Quotient + Remainder

$$(x + 1) (x^2 + 12x + 20)$$
  
=  $(x + 1) (x^2 + 2x + 10x + 20)$   
=  $(x + 1) x (x + 2) + 10 (x + 2)$   
=  $(x + 1)(x + 2)(x + 10)$ 

(iv) 
$$2y^3 + y^2 - 2y - 1$$

$$\triangleright$$
 Let p(y) = 2y<sup>3</sup> + y<sup>2</sup> - 2y - 1

Factors = 
$$2 \times (-1) = -2$$
 are  $\pm 1$  and  $\pm 2$ 

By trial method, we find that

$$p(1) = 0$$

So, (y - 1) is factor of p(y)

Now,

$$p(y) = 2y^{3} + y^{2} - 2y - 1$$

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

$$= 2 + 1 - 2$$

$$= 0$$

Therefore, (y-1) is the factor of p(y)

$$y - 1 \frac{2y^{2} + 3y + 1}{2y^{3} + y^{2} - 2y - 2y - 2y^{3} - 2y^{2}} - \frac{2y^{3} - 2y^{2}}{3Y^{2} - 2y - 1} - \frac{3Y^{2} - 3Y}{Y - 1} - \frac{Y - 1}{Y - 1} - \frac{+}{0}$$

## Now, Dividend = Divisor × Quotient + Remainder

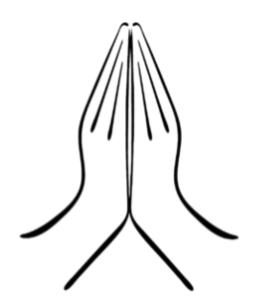
$$(y-1)(2y^2+3y+1)$$

$$= (y-1)(2y^2+2y+y+1)]$$

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

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

## Thanks



## For watching