

Exercise 2B

Question 14:

2 and -2 are two polynomials

$$x^4 + x^3 - 34x^2 - 4x + 120$$

: $(x-2)(x+2) = x^2 - 4$ will divide the given polynomial completely.

Dividing
$$x^4 + x^3 - 34x^2 - 4x + 120$$
 by $x^2 - 4$

:. Quotient
$$q(x) = x^2 + x - 30$$

= $x^2 + 6x - 5x - 30$
= $x(x + 6) - 5(x + 6)$
= $(x + 6)(x - 5)$

For finding zeros of q(x), q(x) = 0

(x + 6)(x - 5) = 0, x = -6 or 5

Other zeros of given polynomial are -6 and 5 So zeros of given polynomial are 2, -2, -6 and 5

Question 15:

 $\sqrt{3}$ and $-\sqrt{3}$ are the zeros of polynomial $x^4 + x^3 - 23x^2 - 3x + 60$ $\therefore (x - \sqrt{3})(x + \sqrt{3}) = x^2 - 3$ will divide the given polynomial completely Dividing $x^4 + x^3 - 23x^2 - 3x + 60$ by $x^2 - 3$

$$x^{2} + x - 20$$

$$x^{2} - 3 \overline{\smash) \begin{array}{c} x^{4} + x^{3} - 23x^{2} - 3x + 60 \\ x^{4} - 3x^{2} \\ - + \\ \hline x^{3} - 20x^{2} - 3x + 60 \\ x^{3} - 3x \\ - + \\ \hline -20x^{2} + 60 \\ -20x^{2} + 60 \\ - & \\ \hline 0 \\ \end{array}}$$

Quotient
$$q(x) = x^2 + x - 20 = x^2 + 5x - 4x - 20$$

= $x(x+5) - 4(x+5)$
= $(x+5)(x-4)$

Other zeros of the given polynomial are the zeros of q(x) $\therefore q(x) = 0 \Rightarrow (x + 5)(x - 4) = 0$

Or x = -5 or 4

Hence the zeros of given polynomial are $\sqrt{3}$, – $\sqrt{3}$, – 5, 4

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