

Exercise 2B

Question 10:

2 is the zero of the polynomial $x^3 - 4x^2 + x + 6$

∴ x -2 is a factor of it

Dividing the given polynomial by x - 2

$$x^{2}-2x-3$$

$$x-2 \overline{\smash)x^{3}-4x^{2}+x+6}$$

$$-x^{3}-2x^{2}$$

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

$$-2x^{2}+4x$$

$$-x^{2}+4x$$

$$-x^{2}+4x$$

$$-x^{2}+4x$$

$$-x^{2}+4x$$

$$-x^{2}+4x$$

$$-x^{2}+4x$$

$$-x^{2}+4x$$

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$$-x^{2}+6$$
Remainder = 0, Quotient of $q(x)=x^{2}-2x-3$

Now,
$$q(x) = x^2 - 2x - 3$$

= $x^2 - 3x + x - 3 = x(x - 3) + (x - 3)$

$$= (x-3)(x+1)$$

Other zeros of given cubic polynomial are zeros of q(x)

$$\therefore q(x) = 0 \Rightarrow (x-3)(x+1) = 0$$
$$\Rightarrow \text{Either } x-3=0 \text{ or } x+1=0$$

- \therefore Either x = 3 or x = -1
- :. Other zeros of the given cubic polynomial are 3 and -1

Question 11:

One zero of the polynomial $x^3 + 2x^2 - 11x - 12$ is -1 $\therefore x + 1$ is a factor of $x^3 + 2x^2 - 11x - 12$ Dividing $x^3 + 2x^2 - 11x - 12$ by x + 1

Quotient
$$q(x) = x^2 + x - 12$$

= $x^2 + 4x - 3x - 12$
= $(x + 4)(x - 3)$

Other zeros of given polynomial are the zeros of q(x)

$$\therefore q(x) = 0$$

$$\Rightarrow$$
 (x + 4)(x - 3) = 0

$$\Rightarrow$$
 Either $x + 4 = 0$ or $x - 3 = 0$

$$\Rightarrow$$
 Either $x = -4$ or $x = 3$

 \therefore -4, 3 are the zeros of q(x)

.. The zeros of given polynomial are -4, -1 and 3

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