

Exercise 2B

Question 12:

1 and -2 are the two zeros of the polynomial $x^3 - 4x^2 - 7x + 10$

Dividing the polynomial by x - 1

$$\begin{array}{r}
x^{2} - 3x - 10 \\
x^{3} - 4x^{2} - 7x + 10 \\
x^{3} - x^{2} \\
- + \\
-3x^{2} - 7x \\
-3x^{2} + 3x \\
+ - \\
-10x + 10 \\
-10x + 10 \\
+ - \\
0
\end{array}$$

Quotient $q(x) = x^2 - 3x - 10$

2 is a zero of given polynomial so it is a zero of $x^2 - 3x - 10$

Dividing $x^2 - 3x - 10$ by x + 2

$$\begin{array}{c|ccccc}
x - 5 & & & \\
x^2 - 3x - 10 & & & \\
x^2 + 2x & & & \\
& & - & & \\
& & -5x - 10 & & \\
& & -5x - 10 & & \\
& & + & + & & \\
\hline
0
\end{array}$$

Third zero of the given polynomial is given by x - 5 = 0 or x = 5

Question 13:

3 and -3 are the two zeros of the polynomial $x^4 + x^3 - 11x^2 - 9x + 18$

 $(x-3)(x+3) = x^2 - 9$ is a factor of given polynomial

 \therefore Dividing the given polynomial by $x^2 - 9$

$$\begin{array}{r} x^{2} + x - 2 \\
x^{4} + x^{3} - 11x^{2} - 9x + 18 \\
x^{4} - 9x^{2} \\
\underline{- + \\
x^{3} - 2x^{2} - 9x \\
x^{3} - 9x \\
\underline{- + \\
-2x^{2} + 18 \\
-2x^{2} + 18 \\
\underline{+ - \\
0}
\end{array}$$

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

Other zeros of given polynomial are -2 and 1 So zeros of given polynomial are 1, -2, 3 and -3

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