Factorisation of Polynomials Ex 6.4 Q1

Answer :

Given that: $f(x)=x^3-6x^2+11x-6,$

$g(x)=x-3,$

By the factor theorem,

If $g(x)$ is a factor of $f(x)$

i.e. $x-3=0$

$\Rightarrow x=3$

Then

$$\begin{aligned} f(3) &= (3)^3-6(3)^2+11(3)-6 \\ &= 27-54+33-6 \\ &= 60-60 \\ &= 0 \end{aligned}$$

As $f(3)$ is zero therefore $g(x)$, is the factor of polynomial $f(x)$.

Factorisation of Polynomials Ex 6.4 Q2

Answer :

It is given that $f(x)=3x^4+17x^3+9x^2-7x-10$ and $g(x)=x+5$

By the factor theorem, $g(x)$ is a factor of polynomial $f(x)$

i.e. $x+5=0$

$\Rightarrow x=-5$

Therefore,

$$f(-5)=3(-5)^4+17(-5)^3+9(-5)^2-7(-5)-10$$

$$=3\times 625+17\times(-125)+225+35-10$$

$$=1875-2125+250$$

$$=0$$

Hence, $g(x)$ is the factor of polynomial $f(x)$.

Factorisation of Polynomials Ex 6.4 Q3

Answer :

It is given that $f(x)=x^5+3x^4-x^3-3x^2+5x+15$ and $g(x)=x+3$

By the factor theorem, $g(x)$ is the factor of polynomial $f(x)$.

i.e. $x+3=0$

$f(-3)=(-3)^5+3(-3)^4-(-3)^3-3(-3)^2+5(-3)+15$

$f(-3)=0$

Hence, $g(x)$ is the factor of polynomial $f(x)$.

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