Factorisation of Polynomials Ex 6.5 Q8

Answer :

Let $f(x)=3x^3-x^2-3x+1$ be the given polynomial.

Now, putting $x=1$, we get

$$f(1)=3(1)^3-(1)^2-3(1)+1$$
$$=3-1-3+1=0$$

Therefore, $(x-1)$ is a factor of polynomial $f(x)$.

Now,

$$f(x)=3x^2(x-1)+2x(x-1)-1(x-1)$$
$$=(x-1)\{3x^2+2x-1\}$$
$$=(x-1)\{3x^2+3x-x-1\}$$
$$=(x-1)(x+1)(3x-1)$$

Hence $(x-1),(x+1)$ *and* $(3x-1)$ are the factors of polynomial $f(x)$.

Factorisation of Polynomials Ex 6.5 Q9

Answer :

Let $f(x)=x^3-23x^2+142x-120$ be the given polynomial.

Now, putting $x=1$, we get

$$f(1)=(1)^3-23(1)^2+142(1)-120$$
$$=1-23+142-120$$
$$=143-143=0$$

Therefore, $(x-1)$ is a factor of polynomial $f(x)$.

Now,

$$f(x)=x^2(x-1)-22x(x-1)+120(x-1)$$
$$=(x-1)\{x^2-22x+120\}$$
$$=(x-1)\{x^2-12x-10x+120\}$$
$$=(x-1)(x-10)(x-12)$$

Hence $(x-1)$, $(x-10)$ *and* $(x-12)$ are the factors of polynomial $f(x)$.

Factorisation of Polynomials Ex 6.5 Q10

Answer :

Let $f(y) = y^3 - 7y + 6$ be the given polynomial.

Now, putting $y = 1$, we get

$$f(y) = (1)^3 - 7(1) + 6 = 1 - 7 + 6$$
$$= 7 - 7 = 0$$

Therefore, $(y-1)$ is a factor of polynomial $f(y)$.

Now,

$$f(y) = y^2(y-1) + y(y-1) - 6(y-1)$$
$$= (y-1)\{y^2 + y - 6\}$$
$$= (y-1)\{y^2 + 3y - 2y - 6\}$$
$$= (y-1)(y+2)(y+3)$$

Hence $(y-1), (y-2)$ *and* $(y+3)$ are the factors of polynomial f (y).

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