

Factorisation of Polynomials Ex 6.5 Q11 **Answer**:

Let $f(x) = x^3 - 10x^2 - 53x - 42$ be the given polynomial.

Now, putting x = -1, we get

$$f(-1) = (-1)^3 - 10(-1)^2 - 53(-1) - 42$$
$$= -1 - 10 + 53 - 42$$
$$= -53 + 53 = 0$$

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

Now.

$$f(x) = x^{2}(x+1) - 11x(x+1) - 42(x+1)$$

$$= (x+1)\{x^{2} - 11x - 42\}$$

$$= (x+1)\{x^{2} - 14x + 3x - 42\}$$

$$= (x+1)(x+3)(x-14)$$

Hence (x+1), (x+3) and (x-14) are the factors of polynomial f(x).

Factorisation of Polynomials Ex 6.5 Q12

Answer:

Let $f(y) = y^3 - 2y^2 - 29y - 42$ be the given polynomial.

Now, putting y = -2, we get

$$f(-2) = (-2)^3 - 2(-2)^2 - 29(-2) - 42$$
$$= -8 - 8 + 58 - 42 = -58 + 58$$
$$= 0$$

Therefore, (y+2) is a factor of polynomial f(y).

Now.

$$f(y) = y^{2}(y+2)+4y(y+2)-21(y+2)$$

$$= (y+2)\{y^{2}-4y-21\}$$

$$= (y+2)\{y^{2}-7y+3y-21\}$$

$$= (y+2)(y+3)(y-7)$$

Hence (y+2), (y+3) and (y-7) are the factors of polynomial f(y).

Factorisation of Polynomials Ex 6.5 O13

Answer:

Let $f(v) = 2v^3 - 5v^2 - 19v + 42$ be the given polynomial.

Now, putting y = 2, we get

$$f(2) = 2(2)^3 - 5(2)^2 - 19(2) + 42$$
$$= 16 - 20 - 38 + 42 = -58 + 58$$
$$= 0$$

Therefore, (y-2) is a factor of polynomial f(y).

Now.

$$f(y) = 2y^{2}(y-2) - y(y-2) - 21(y-2)$$

$$= (y-2)\{2y^{2} - y - 21\}$$

$$= (y-2)\{2y^{2} - 7y + 6y - 21\}$$

$$= (y-2)(y+3)(2y-7)$$

Hence (y-2), (y+3) and (2y-7) are the factors of polynomial f(y).

Factorisation of Polynomials Ex 6.5 Q14

Answer:

Let $f(x) = x^3 + 13x^2 + 32x + 20$ be the given polynomial.

Now, putting x = -1, we get

$$\Rightarrow f(-1) = (-1)^3 + 13(-1)^2 + 32(-1) + 20$$
$$= -1 + 13 - 32 + 20 = -33 + 33$$
$$= 0$$

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

Now.

$$f(x) = x^{2}(x+1) + 12x(x+1) + 20(x+1)$$

$$= (x+1)\{x^{2} + 12x + 20\}$$

$$= (x+1)\{x^{2} + 10x + 2x + 20\}$$

$$= (x+1)(x+2)(x+10)$$

Hence (x+1), (x+2) and (x+10) are the factors of polynomial f(x).

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