Factorisation of Polynomials Ex 6.4 Q10

Answer :

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

By factor theorem, $(x-5)$ is the factor of $f(x)$, if $f(5) = 0$

Therefore,

$$f(5) = (5)^3 - 3(5)^2 + a(5) - 10 = 0$$

$$125 - 75 + 5a - 10 = 0$$

$$5a = -40$$

$$\boxed{a = -8}$$

Hence, $a = -8$.

Factorisation of Polynomials Ex 6.4 Q11

Answer :

Let $f(x) = 5x^3 - 7x^2 - ax - 28$ be the given polynomial.

By the factor theorem,

$(x-4)$ is a factor of $f(x)$.

Therefore $f(4) = 0$

Hence ,

$$f(4) = 5(4)^3 - 7(4)^2 - a(4) - 28 = 0$$

$\Rightarrow$320-112-4a-28=0$\Rightarrow$180-4a=0$\Rightarrow$a=1804=45

Hence, $\boxed{a = 45}$

Factorisation of Polynomials Ex 6.4 Q12

Answer :

Let $4x^4 + 2x^3 - 3x^2 + 8x + 5a$ be the polynomial.

By the factor theorem,

$(x+2)$ is a factor of $f(x)$ if $f(-2) = 0$.

Therefore,

$$f(2) = 4(-2)^4 + 2(-2)^3 - 3(-2)^2 + 8(-2) + 5a = 0$$

$$64 - 16 - 12 - 16 + 5a = 0$$

$$5a = -20$$

$$a = -4$$

Hence, $\boxed{a = -4}$

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