

Factorisation of Polynomials Ex 6.3 Q1 Answer:

Let us denote the given polynomials as

$$f(x) = x^3 + 4x^2 - 3x + 10,$$

$$g(x) = x + 4$$

$$\Rightarrow g(x) = x - (-4)$$

We have to find the remainder when f(x) is divided by g(x).

By the remainder theorem, when f(x) is divided by g(x) the remainder is

$$f(-4) = (-4)^3 + 4(-4)^2 - 3(-4) + 10$$
$$= -64 + 64 + 12 + 10$$
$$= \boxed{22}$$

Now we will show by actual division

So the remainder by actual division is 22

Factorisation of Polynomials Ex 6.3 Q2 **Answer:**

Let us denote the given polynomials as

$$f(x) = 4x^4 - 3x^3 - 2x^2 + x - 7$$
$$g(x) = x - 1$$

We have to find the remainder when f(x) is divided by g(x).

By the remainder theorem, when f(x) is divided by g(x) the remainder is

$$f(1) = 4(1)^4 - 3(1)^3 - 2(1)^2 + 1 - 7$$
$$= 4 - 3 - 2 + 1 - 7$$
$$= -7$$

Now we will show remainder by actual division

So the remainder by actual division is -7

Factorisation of Polynomials Ex 6.3 Q3

Answer:

Let us denote the given polynomials as

$$f(x) = 2x^4 - 6x^3 + 2x^2 - x + 2,$$

$$g(x) = x + 2$$

$$\Rightarrow g(x) = x - (-2)$$

We have to find the remainder when f(x) is divided by g(x).

By the remainder theorem, when f(x) is divided by g(x) the remainder is

$$f(-2) = 2(-2)^4 - 6(-2)^3 + 2(-2)^2 - (-2) + 2$$
$$= 32 + 48 + 8 + 2 + 2$$
$$= 92$$

Now we will calculate the remainder by actual division

$$\begin{array}{r}
2x^3 - 10x^2 + 22x - 45 \\
x + 2)2x^4 - 6x^3 + 2x^2 - x + 2 \\
2x^4 + 4x^3 \\
\underline{\qquad - \\
-10x^3 - 20x^2 \\
\underline{\qquad + \\
+ \\
22x^2 - x + 2 \\
22x^2 + 44x \\
\underline{\qquad - \\
-45x + 2 \\
-45x - 90 \\
\underline{\qquad + \\
+ \\
92}
\end{array}$$

So the remainder by actual division is 92

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