

Exercise 2D

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Question 1:
f(x) = (x^3 - 8)
By the Factor Theorem, (x - 2) will be a factor of f(x) if f(2) = 0.
Here, f(2) = (2)^3 - 8
= 8 - 8 = 0
\therefore (x - 2) is a factor of (x<sup>3</sup> - 8).
Question 2:
f(x) = (2x^3 + 7x^2 - 24x - 45)
By the Factor Theorem, (x - 3) will be a factor of f(x) if f(3) = 0.
Here, f(3) = 2 \times 3^3 + 7 \times 3^2 - 24 \times 3 - 45
= 54 + 63 - 72 - 45
= 117 - 117 = 0
(x - 3) is a factor of (2x^3 + 7x^2 - 24x - 45).
Question 3:
f(x) = (2x^4 + 9x^3 + 6x^2 - 11x - 6)
By the Factor Theorem, (x - 1) will be a factor of f(x) if f(1) = 0.
Here, f(1) = 2 \times 1^4 + 9 \times 1^3 + 6 \times 1^2 - 11 \times 1 - 6
= 2 + 9 + 6 - 11 - 6
= 17 - 17 = 0
\therefore (x - 1) is factor of (2x^4 + 9x^3 + 6x^2 - 11x - 6).
Question 4:
f(x) = (x^4 - x^2 - 12)
By the Factor Theorem, (x + 2) will be a factor of f(x) if f(-2) = 0.
Here, f(-2) = (-2)^4 - (-2)^2 - 12
= 16 - 4 - 12
= 16 - 16 = 0
:. (x + 2) is a factor of (x^4 - x^2 - 12).
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********* END *******