



A Level Maths

Topic: Remainder and Factor Theorem

Instructions

Answer all questions. Show complete working. Use the Remainder and Factor Theorems wherever applicable.

Practice Questions

1. Apply the Remainder Theorem to find the remainder when $2x^3 - 3x^2 + 5x - 4$ is divided by $x - 1$.
2. Use the Factor Theorem to determine if $x - 2$ is a factor of $x^3 - 4x^2 + 5x - 2$.
3. Find the remainder when $3x^4 + 5x^3 - 2x^2 + 7x - 3$ is divided by $x + 1$.
4. Use the Remainder Theorem to find the remainder when $x^4 - 6x^3 + 11x^2 - 6x + 2$ is divided by $x - 1$.
5. Determine if $x + 3$ is a factor of $x^4 + 5x^3 - 3x^2 - 13x - 18$ using the Factor Theorem.
6. If $x^2 - 4x + 4$ divides $2x^4 - 3x^3 + x^2 - 6x + 12$, find the remainder using the Remainder Theorem.
7. Use the Factor Theorem to check if $x - 1$ is a factor of $2x^3 - 5x^2 + 3x - 2$.
8. Find the quotient and remainder when $4x^3 + 7x^2 - 2x + 5$ is divided by $x + 2$.

Multiple-Choice Questions

1. The remainder when $2x^3 + 3x^2 - 5x + 4$ is divided by $x - 1$ is:
 - A. 4
 - B. 3
 - C. -5
 - D. 0
2. Which of the following is true according to the Factor Theorem?
 - A. If $x - a$ is a factor of a polynomial, then the remainder when the polynomial is divided by $x - a$ is a .
 - B. If $x - a$ is a factor of a polynomial, then the remainder when the polynomial is divided by $x - a$ is 0.
 - C. If $x - a$ is a factor of a polynomial, then the polynomial has no remainder.
 - D. If $x - a$ is a factor of a polynomial, then the quotient is $x - a$.
3. The remainder when $4x^3 - 3x^2 + x - 6$ is divided by $x + 2$ is:
 - A. -6
 - B. 6
 - C. 3
 - D. -3
4. If $x - 3$ is a factor of $x^3 - 6x^2 + 9x$, then the remainder when divided by $x - 3$ is:
 - A. 0
 - B. 3
 - C. -3
 - D. 9
5. The remainder when $x^2 + 2x - 3$ is divided by $x + 1$ is:
 - A. 1
 - B. -1
 - C. 2
 - D. -2

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