

5.6 The Remainder and Factor Theorems
Honors Algebra 2

1. If $f(x) = 3x^4 - 2x^3 + 5x + 2$, find $f(4)$

a. Synthetic Substitution

b. Direct Substitution

2. If $g(x) = 4x^5 + 2x^3 + x^2 - 1$, find $g(-1)$

a. Synthetic Substitution

b. Direct Substitution

3. Determine whether $x - 5$ is a factor of $x^3 - 7x^2 + 7x + 15$. Then find the remaining factors of the polynomial.

4. Show that $x - 2$ is a factor of $x^3 - 7x^2 + 4x + 12$. Then find the remaining factors of the polynomial.

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5. Given that $x + 2$ is a factor of $x^3 - 3x + 2$, find the remaining factors of the polynomial.
6. Give that $x - 1$ is a factor of $x^4 + 2x^3 + 2x^2 - 2x - 3$, find the remaining factors of the polynomial.

Review

Find each of the following:

- Maxima
- Minima
- Zeros
- Smallest possible degree of the function
- Sign of the leading coefficient
- Domain
- Range

