

Unit 2: Polynomial Functions

PRACTICE

Name: _____ Date: _____

Show all work. Write each answer as an exact value (integer, fraction, or expression) in simplest form.

1. Add the polynomials: $(3x^2 + 5x - 4) + (2x^2 - 8x + 7)$. Give your answer in standard form.

Answer: _____

2. Subtract: $(6x^3 - 2x^2 + x - 9) - (4x^3 - 2x^2 + 5x - 3)$. Give your answer in standard form.

Answer: _____

3. Multiply: $(x + 6)(x - 2)$. Give your answer in standard form.

Answer: _____

4. Multiply: $(2x - 3)(x^2 + 4x - 5)$. Give your answer in standard form.

Answer: _____

5. What is the degree of the polynomial $7x^4 - 3x^6 + 2x^2 - 9$?

Answer: _____

6. Evaluate the polynomial $P(x) = x^3 - 4x^2 + 2x - 5$ at $x = 3$.

Answer: _____

7. Using the Remainder Theorem, find the remainder when $P(x) = x^3 + 2x^2 - 5x + 1$ is divided by $(x - 2)$.

Answer: _____

8. A polynomial has zeros $x = -1$, $x = 3$, and $x = 4$ (each with multiplicity 1). What is its degree?

Answer: _____

9. The polynomial $f(x) = (x - 5)(x + 2)(x - 1)$ is written in factored form. What is its constant term (the value of $f(0)$)?

Answer: _____

10. Factor completely and give the largest zero of $P(x) = x^2 - 7x + 12$.

Answer: _____

11. A polynomial of degree 5 has a leading coefficient of 2. As $x \rightarrow +\infty$, does $P(x)$ go to $+\infty$ or $-\infty$? Answer + or -.

Answer: _____