

Unit 2: Polynomial Functions

PRACTICE · SET 2

Name: _____ Date: _____

Show your work where needed. Write each answer as a short exact value (number, fraction, or coordinate pair) in plain-text notation.

1. Add the polynomials: $(3x^2 + 5x - 2) + (4x^2 - 7x + 6)$. Give the resulting polynomial.

Answer: _____

3. Multiply: $(x + 5)(x - 3)$. Give the resulting polynomial in standard form.

Answer: _____

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

Answer: _____

7. Given $P(x) = 2x^3 - x^2 + 4x - 7$, evaluate $P(2)$.

Answer: _____

9. The polynomial $P(x) = x^2 - 7x + 12$ factors as $(x - a)(x - b)$. Find the product $a \times b$.

Answer: _____

11. A polynomial has zeros at $x = 3$ and $x = -5$. Find the constant term of the monic polynomial (leading coefficient 1) of least degree with exactly these zeros.

Answer: _____

2. Subtract: $(6x^3 - 2x + 9) - (2x^3 + 4x^2 - 2x + 1)$. Give the resulting polynomial.

Answer: _____

4. Multiply: $(2x - 1)(x^2 + 3x - 4)$. Give the resulting polynomial in standard form.

Answer: _____

6. Use the Remainder Theorem: find the remainder when $P(x) = x^3 - 4x^2 + 2x + 5$ is divided by $(x - 3)$.

Answer: _____

8. Find the sum of all zeros of the polynomial $(x - 4)(x + 1)(x - 6)$.

Answer: _____

10. Divide using long or synthetic division: $(x^2 + 7x + 10) / (x + 2)$. Give the quotient polynomial (the division has no remainder).

Answer: _____