7-3 Lesson Master

VOCABULARY
1. Give the definition of polynomial.

2. State the Remainder Theorem.

SKILLS Objective C
3. If a polynomial \( p(x) \) is divided by \( x \), what is the remainder?

4. Suppose \( p(x) = d(x) \cdot q(x) + r(x), \) \( p(x) = 2x^2 + 6x - 8, \) and \( d(x) = x + 3 \). Find possible polynomials \( q(x) \) and \( r(x) \).

In 5–8, determine the quotient and remainder when the first polynomial is divided by the second.
5. \( x^3 - 13x^2 + 48x - 27, x - 3 \)

6. \( y^6 - 7y^4 - 70, y - 5 \)

7. \( z^4 - z^3 - 5z^2 + 4z + 16, 2z^2 + 4 \)

8. \( 2a^6 + 5a^4 - 19a^2 + 22a - 50, a^2 + 2 \)

In 9–12, use the Remainder Theorem to find the remainder when the first polynomial is divided by the second.
9. \( t^5 - t^4 + t^3 - t^2 + t - 1, t + 1 \)

10. \( r^5 - r^4 + r^3 - r^2 - r - 1, r - 1 \)

11. \( 2w^6 + 2w^4 + 2w^3 + 2w^2 + 2w + 2, w - \frac{1}{2} \)

12. \( 3y^4 + 5y^2 - 1, y - \sqrt{2} \)