

**Lesson #11-2: Understanding Dividing Polynomials and Dividing Polynomials Using Long Division**  
**(Reference: Lesson #38 in book)**

**Problem**

1. **Divide each of the following polynomials by each monomial. Express your final answer in standard form.**

1.  $(24x^6 - 12x^5 + 30x^4) \div (-6x^5)$

2.  $\frac{64x^4y^7 - 48x^2y^5 + 72xy^3}{8xy^3}$

3.  $(16y^5z - 8y^2z^2 + 12yz^3) \div (-4y^2z^2)$

4.  $\frac{4x^2y^3z^4 + 20x^3y^4z^5 - 36x^4y^5z^6}{4x^2y^3z^4}$

5.  $(-32x^5yz^4 + 80x^3yz^7 - 8xy^3) \div (-16x^2yz)$

6.  $\frac{60a^4b^3c^3 - 30a^5b^2c^7 + 100a^3b}{-5a^4bc^3}$

7. **Divide each of the following polynomials by each binomial.**

7.  $\frac{8x^2 - 19xy - 15y^2}{x - 3y}$

8.  $(64x^2 - 48xy + 9y^2) \div (8x - 3y)$

9.  $\frac{50xy^4 + 80x^2y^3 + 32x^3y^2}{5y + 4x}$

10.  $\frac{54x^3z^4 + 128y^3z^4}{2z(3x + 4y)}$

11.  $\frac{4x^2y^2 - 12xy^2z + 8xy^3 - 24y^3z}{y(x + 2y)}$

$$12. (99x^3y - 33x^3 + 33x^2y - 11x^2) \div (3x + 1)$$

13. Divide each of the following polynomials using the long division method.

$$13. (4a^2 - 22a + 32) \div (2a + 3)$$

$$14. \frac{8x^3 - 10x^2 - x + 3}{2x + 1}$$

$$15. (12t^3 - 11t^2 + 9t + 18) \div (4t + 3)$$

$$16. (x^4 + 2x^3 + 2x^2 - x - 1) \div (x^2 + 1)$$

$$17. \frac{x^3 - 1}{x - 1}$$

$$18. \frac{6x^4 - 15x^3 + 14x^2 - 5x + 10}{3x^2 + 1}$$