

Lesson #11 B-2: Understanding Dividing Polynomials and Dividing Polynomials Using Long Division and Synthetic Division
(Reference: Lesson #38 & #51 in book)**Problem**

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

$$1. \left(-36x^5y^8z^3 + 96x^9y^5z^7 - 120x^7y^3z^2 \right) \div \left(-12x^4y^3z^2 \right)$$

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

3. Divide each of the following polynomials by each binomial.

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

$$4. \frac{27x^3y^2 - 75xy^4}{3xy(3x - 5y)}$$

$$5. \frac{60x^5y + 100x^4y^2 - 135x^3y - 225x^2y^2}{5x(2x + 3)(3x + 5y)}$$

$$6. \frac{54x^6y^9z^2 + 128x^3y^{12}z^2}{2xyz(9x^2 - 12xy + 16y^2)}$$

7. Divide each of the following polynomials using the long division or Synthetic Division methods.

$$7. \left(8x^3 - 10x^2 - x + 3 \right) \div (x - 1)$$

$$8. \left(2x^4 - 9x^3 - 21x^2 + 88x + 48 \right) \div (x - 2)$$

$$9. \left(27x^3 + 64 \right) \div (3x + 4)$$

$$10. \left(14x^4 - 47x^3 + 14x^2 + 58x - 49 \right) \div (2x - 5)$$

$$11. \left(x^4 + 3x^2 - 6 \right) \div \left(x^2 + x \right)$$