Name: _____ Class: _____ Date: _____ ID: A

Lesson #11: 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. $\dfrac{6x^4 + 4x^3 - 2x^2}{2x}$

   2. $\dfrac{7x^4 + 7x^3 - 84x^2}{7x^2}$

   3. $\dfrac{20x^4 - 25x^3 + 5x}{5x^2}$

   4. $\left(-9y^6 + 8y^7 - 11y - 4\right) \div \left(y^2\right)$

   5. $\left(-8x^4y^2 - 6x^3y^2 - 12x^5y^2\right) \div \left(-3x^3y^2\right)$

   6. $\dfrac{45x^4y^3 + 30x^3y^2 - 60x^2y}{-15x^2y}$

   7. $\dfrac{180x^4y^{10} - 150x^3y^8 + 120x^2y^6 - 90xy^4}{-30xy^2}$

   8. $\dfrac{16y^5z^4 - 8y^2z^2 + 12yz^3}{-4y^2z^2}$

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

   9. $\dfrac{x^2 + 5x - 14}{x + 7}$

   10. $\dfrac{x^2 - 10x + 25}{x - 5}$

   11. $\dfrac{3x^2 - 14x - 5}{x - 5}$

12. $\left(3x^2 - 25x + 8\right) \div (x - 8)$

13. $\dfrac{x^3 + 4x^2 + 2x + 8}{x + 4}$

14. $\dfrac{x^3 + 3x^2 - 9x - 27}{x + 3}$

15. $\dfrac{20y^3 + 4y^2 - 45y - 9}{2y - 3}$

16. $\dfrac{x^3 - 2xy^2 + x^2y - 2y^3}{x + y}$

17. **Divide each of the following polynomials using the long division method.**

17. $\left(13x^2 + 5x - 42\right) \div (x + 2)$

18. $\left(8x^2 + x^3 - 20x\right) \div (x - 2)$

19. $\left(4x^2 + 7x + 17\right) \div (x - 3)$

20. $\left(-3x^2 + 6x^3 + x - 33\right) \div (x - 2)$

21. $\left(3x^3 + 6x^2 + 7\right) \div (x + 4)$

22. $\left(5x^3 + 6x - 8\right) \div (x - 4)$

23. $\left(8x^3 - 4x^2 - 14x + 15\right) \div (2x + 3)$

24. $\left(x^4 + 2x^3 + 2x^2 - x - 1\right) \div \left(x^2 + 1\right)$