

**Advanced Precalculus**  
**HW: Polynomial Long Division**

Name: \_\_\_\_\_

**In each problem, do the following on separate sheets:**

- 1.) Perform the Polynomial Long Division
- 2.) Write the answer as Polynomial = Quotient \* Divisor + Remainder form
- 3.) Expand to check that you are correct.

1.) 
$$\frac{x^3 - x^2 - 5x - 28}{x - 4}$$

9.) 
$$\frac{x^3 + 3x^2 - 5x + 4}{x^2 - x - 1}$$

2.) 
$$\frac{-3x^3 - 11x^2 - 25}{x + 5}$$

10.) 
$$\frac{x^5 + x^4 - 2x^3 - 2x^2 - 35x - 35}{x^2 + 5}$$

3.) 
$$\frac{2x^4 + 3x^3 - 11x^2 + 15x - 20}{2x - 3}$$

11.) 
$$\frac{x^5 + 2x^3 + x^2 - 33x + 7}{x^2 + 7}$$

4.) 
$$\frac{3x^4 - 5x^3 - 6x^2 + 13x - 1}{3x - 5}$$

12.) 
$$\frac{3x^3 - 13x}{x - 4}$$

5.) 
$$\frac{7x^4 + 18x^3 + 9x^2 + 2x + 3}{x + 2}$$

13.) 
$$\frac{x^3 - x^2 - 41x + 105}{x + 7}$$

6.) 
$$\frac{3x^5 + 2x^4 + 4x^3 - 5x^2 + 11x + 3}{x^2 + 2x + 3}$$

14.) 
$$\frac{x^7 + 2x^5 - 3x^4 + x^3 - 4x^2 + 2x - 5}{x^4 - 3x + 1}$$

7.) 
$$\frac{2x^4 - 3x^3 + 10x^2 - 21x - 26}{x^2 + 7}$$

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

8.) 
$$\frac{x^4 - 20}{x^2 + 5}$$

16.) 
$$\frac{x^6 - 6x^5 - x^4 - x^2 + 6x + 4}{x^4 - 1}$$