Name: _____ Date: _____

Long Division of Polynomials

1. $(5x^3 - 8x^2 - x - 4) \div (x - 2)$

$$x-2\overline{)\,5x^3-8x^2-x-4}$$

$5x^2+2x+3$

$-5x^3+10x^2$ ← $x(\ ) = 5x^3$?

$2x^2 - x$ ← $x(\ ) = 2x^2$?

$-2x^2+4x$

$3x - 4$ ← $x(\ ) = 3x$?

$-3x+6$

2

$$5x^2+2x+3+\frac{2}{x-2}$$

2. $(6x^3 + 16x^2 - 2) \div (x + 1)$

$0x$

$$6x^2+10x-10+\frac{8}{x+1}$$

3. $(-3x^2 + 20x - 12) \div (x - 6)$

$$-3x+2$$

4. $(10x^3 + 3x^2 - 26x - 12) \div (2x + 3)$

$$5x^2-6x-4$$

5. $(-9x^3 + 6x^2 - 30x + 75) \div (3x^2 + 8)$

$0x$

$3x^2 + 0x + 8 \overline{)-9x^3 + 6x^2 - 30x + 75}$

$$-3x + 2 + \frac{-6x + 59}{3x^2 + 8}$$

6. $(20x^3 - 26x^2 + 56x - 24) \div (5x^2 - 4x + 12)$

$4x - 2$

7. $(2x^3 + 4x^2 + 5) \div (x - 3)$

$0x$

$$2x^2 + 10x + 30 + \frac{95}{x - 3}$$

8. $(6x^3 + 23x^2 + 6x - 35) \div (3x^2 + 4x - 7)$

$$3x^2 + 4x - 7 \overline{)6x^3 + 23x^2 + 6x - 35}$$

$2x + 5$

$-6x^3 \mp 8x^2 \mp 14x$

$15x^2 + 20x - 35$

$-15x^2 \mp 20x \pm 35$

0

$2x + 5$