Name: _____   Date: _____

UNIT 1   **LESSON 7**

AIM: HOW DO WE COMPLETE LONG DIVISION WITH REMAINDERS?

Do Now:

a) Use long division: $x+3\overline{)x^2+7x+12}$

b) Use long division to solve: $12\overline{)265}$

---

1. Find the quotient of $\quad x+2\overline{)2x^2+6x+5}$

2. Find the quotient of $\quad \dfrac{x^3-x^2+3x-1}{x+3}$

3. Is $x-4$ a factor of $x^2+3x-28$?

4. Is $2x-5$ a factor of $4x^3+5x-8$? We can't factor it, so we must use long division.

5. Consider the polynomial function $f(x) = 3x^2 + 8x - 4$.

   a. Divide f by $x - 2$.

   b. Find $f(2)$.

If the remainder is 0, the divisor _____ a factor of the dividend.

If there IS a remainder, the divisor _____ a factor of the dividend.

1. Express the quotient as a polynomial with a remainder as a rational expression $\dfrac{x^2+4x+10}{x-8}$

2. The expression $\dfrac{x^3 + 2x^2 + x + 6}{x + 2}$ is equivalent to

(1) $x^2 + 3$

(3) $2x^2 + x + 6$

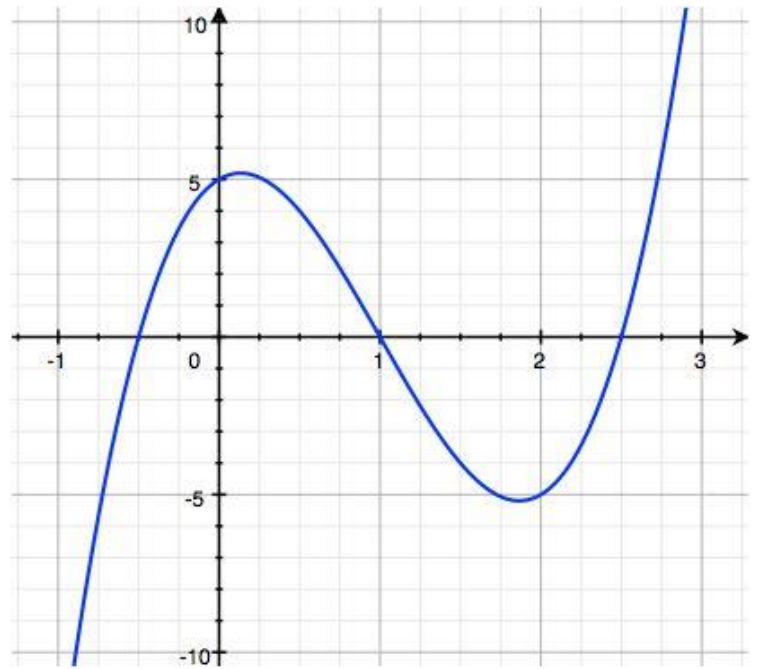(2) $x^2 + 1 + \dfrac{4}{x + 2}$

(4) $2x^2 + 1 + \dfrac{4}{x + 2}$

3. Is $x-2$ a factor of x^3-8? Show all work and explain your answer.

4. Based on the graph shown,

a) State all the solutions of this equation

b) State all the factors of this equation

c) Write the equation in standard form.

5. Find question for even /odd functions......Justify algebraically!!!