Name _____

Class _____
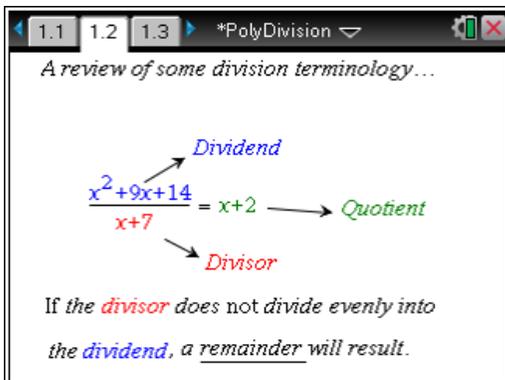
Problem 1 – Introduction

1. Identify the term that is associated with each of the parts of the division problem shown below.

a. _____

b. _____

c. _____

2. When $x^4 + 2x^3 - 13x^2 - 14x + 24$ is divided by $x - 1$, …

    a. the quotient is:

    b. the remainder is:

3. Factor $x^4 + 2x^3 - 13x^2 - 14x + 24$, then divide by $x - 1$. How do your results explain the remainder obtained in the last question?

Problem 2 – Remainders

4. When $x^3 - 7x - 6$ is divided by $x - 4$, …

    a. the quotient is:

    b. the remainder is:

5. What is the value of $f(x) = x^3 - 7x - 6$ at $x = 4$? In other words, what is the value of $f(4)$?

    $f(4) =$

6. 4 is a zero or root of the function $f(x) = x^3 - 7x - 6$.

    ☐ agree   ☐ disagree

Problem 3 – Retained Impressions

7. Divide $6x^3 - 5x^2 + 4x - 17$ by $x - 3$.

    a. The quotient is:

    b. The remainder is:

8. Given $f(x) = 6x^3 - 5x^2 + 4x - 17$, what is the value of $f(3)$?

    $f(3) =$

9. 3 is a zero or root of the function $f(x) = 6x^3 - 5x^2 + 4x - 17$.

    ☐ agree   ☐ disagree

10. Divide $x^5 - 23x^3 + 6x^2 + 112x - 96$ by $x + 4$.

    a. The quotient is:

    b. The remainder is:

11. Given $f(x) = x^5 - 23x^3 + 6x^2 + 112x - 96$, what is the value of $f(-4)$?

    $f(-4) =$

12. –4 is a zero or root of the function $f(x) = x^5 - 23x^3 + 6x^2 + 112x - 96$.

    ☐ agree   ☐ disagree

13. Describe the effect on the quotient as observed on the graph when a divisor is a factor of a dividend.