Name: Key

Date: 9/7/17

CC ALGEBRA 2

TROICI

LESSON #2: DIVIDING POLYNOMIALS (DAY 1)

Do Now : Use long division to find the quotient:

a. $5\overline{)185}$

37

15↓

35

35

0 → remainder

b. $11\overline{)253}$

23

22↓

33

33

0 → remainder

1) $\frac{2x^2+5x+3}{x+1}$

$2x+3$ → quotient

$x+1$ ← divisor

$2x^2+5x+3$ → dividend

$+(-2x^2 \oplus 2x)\downarrow$

$3x+3$

$+(-3x \oplus 3)$

0

$2x+3$

2) $\frac{2x^2+x-10}{x-2}$

$2x+5$ → quotient

$x-2$ ← divisor

$2x^2+x-10$ → dividend

$+(-2x^2+4x)\downarrow$

$5x-10$

$-(5x+10)$

0

$2x+5$

The method that we just used is called Long Division

DIVIDEND: numerator

DIVISOR: denominator (Factor)

↳ when the remainder is zero

The answer to the division problem is called the Quotient

3) $(x^2 - 2x - 15) \div (x + 3)$

$$x+3 \overline{)\, x^2 - 2x - 15}$$

$x - 5$

$+(-x^2 \oplus 3x)$

$-5x - 15$

$+(+5x + 15)$

0

$x - 5$

4) $(2x^3 + x^2 - 16x + 15) \div (2x - 3)$

$$2x-3 \overline{)\, 2x^3 + x^2 - 16x + 15}$$

$x^2 + 2x - 5$

$+(-2x^3 + 3x^2)$ ↓

$+4x^2 - 16x$

$+(-4x^2 + 6x)$ ↓

$-10x + 15$

$+(+10x \oplus 15)$

0

$x^2 + 2x - 5$

PRACTICE:

5) $(x^2 + 6x + 9) \div (x + 3)$

$$x+3 \overline{)\, x^2 + 6x + 9}$$

$x + 3$

$+(-x^2 \oplus 3x)$ ↓

$3x + 9$

$+(-3x \oplus 9)$

0

$x + 3$

6) $\dfrac{x^3+2x^2+2x+1}{x+1}$

$$x+1 \overline{)\, x^3 + 2x^2 + 2x + 1}$$

$x^2 + x + 1$

$+(-x^3 \oplus x^2)$ ↓

$x^2 + 2x$

$+(-x^2 \oplus x)$ ↓

$x + 1$

$+(-x \oplus 1)$

0

$x^2 + x + 1$

7) ~~$(7x^3 - 8x^2 - 13x + 2)$~~ $\div (7x - 1)$

$$7x-1 \overline{)\, 7x^3 - 8x^2 - 13x + 2}$$

$x^2 - x - 2$

$+(-7x^3 + x^2)$ ↓

$-7x^2 - 13x$

$+(+7x^2 \oplus x)$ ↓

$-14x + 2$

$+(+14x \oplus 2)$

0

8) $\dfrac{2x^3 - 13x^2 - x + 3}{2x+1}$

$$2x+1 \overline{)\, 2x^3 - 13x^2 - x + 3}$$

$x^2 - 7x + 3$

$+(-2x^3 \oplus x^2)$ ↓

$-14x^2 - x$

$+(+14x^2 + 7x)$ ↓

$6x + 3$

$+(-6x \oplus 3)$

0