

10/15/15

## 2.3 Real Zeros of Polynomial Function

Warm-up

1)  $x^1 \cdot x^1 = x^2$     2)  $x^3 \cdot x^4 = x^7$

3)  $x^3 \cdot x^2 = x^5$     4)  $2x^2 \cdot 4x^5 = 8x^7$

Solve

$$\begin{array}{r} 07 \\ 6 \overline{)44} \\ \underline{-42} \\ 2 \end{array} \quad 7 \text{ R: } 2$$

Parts of  
a Division

$$\begin{array}{r} 5 \\ 3 \overline{)16} \\ \underline{-15} \\ 1 \end{array}$$

divisor      quotient  
dividend  
remainder

Ex 1

Divide  $20x^2 - 13x + 2$  by  $4x - 1$

① set up division

$$\begin{array}{r}
 5x - 2 \\
 \hline
 4x - 1 \overline{) 20x^2 - 13x + 2} \\
 \underline{-20x^2 + 5x} \phantom{+ 2} \\
 -8x + 2 \\
 \underline{+8x - 2} \\
 0
 \end{array}$$

② Check for place holders.

Summary:  $5x - 2$

Ex. 2

Divide  $\frac{8x^3 - 1}{2x - 1}$

Ex 3.

Divide  $x^4 - 10x^2 - 2x + 4$  by  $x + 3$ .

$$\begin{array}{r}
 x^3 - 3x^2 - x + 1 \\
 \hline
 x + 3 \overline{) x^4 + 0x^3 - 10x^2 - 2x + 4} \\
 \underline{-x^4 + 3x^3} \phantom{+ 4} \\
 -3x^3 - 10x^2 - 2x + 4 \\
 \underline{+3x^3 + 9x^2} \phantom{- 2x + 4} \\
 -x^2 - 2x + 4 \\
 \underline{+x^2 + 3x} \phantom{+ 4} \\
 -x + 4 \\
 \underline{+x + 3} \\
 1
 \end{array}$$

Summary:  $x^3 - 3x^2 - x + 1 + \frac{1}{x+3}$

Summary: (quotient) +  $\frac{\text{remainder}}{\text{divisor}}$