

Name: \_\_\_\_\_

Date: \_\_\_\_\_

Class worksheet: Alg2H  
 Rational expressions: Divide (Synthetic)  
 (book chapter 6)

Long	Synthetic
$  \begin{array}{r}  2x^2 + 3x + 4 \\  \hline  x-5 \overline{) 2x^3 - 7x^2 - 11x - 20} \\  \underline{2x^3 - 10x^2} \phantom{- 11x - 20} \\  3x^2 - 11x \phantom{- 20} \\  \underline{3x^2 - 15x} \phantom{- 20} \\  4x - 20 \\  \underline{4x - 20} \\  = =  \end{array}  $	<p style="text-align: center;"><i>only</i> For <math>\div (x+a)</math>  <math>\uparrow</math>          we take <math>-a</math></p> $  \begin{array}{r}  5 \overline{) 2 \quad -7 \quad -11 \quad -20} \\  \underline{10} \phantom{- 11} \phantom{- 20} \\  2 \phantom{- 11} \phantom{- 20} \\  \underline{15} \phantom{- 20} \\  2 \phantom{- 20} \\  \underline{20} \\  0  \end{array}  $ <p style="text-align: center;"><math>2x^2 + 3x + 4</math></p> <p style="text-align: right;"><math>\uparrow</math> remainder</p>

(W/ remainder)

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

$$4x^2 + 8x + 17 + \frac{41}{x-2}$$

$$\begin{array}{r}
 2 \overline{) 4 \quad 0 \quad 1 \quad 7} \\
 \underline{8} \phantom{0} \phantom{1} \phantom{7} \\
 8 \phantom{0} \phantom{1} \phantom{7} \\
 \underline{16} \phantom{7} \\
 17 \phantom{7} \\
 \underline{41} \\
 41
 \end{array}$$

$$\frac{2x^3 + 5x^2 + 5x + 6}{x + 2} = ?$$

$$2x^2 + x + 3$$

$$\frac{2x^4 - 30x^2 - 2x - 1}{x - 4} = ?$$

$$2x^3 - 8x^2 + 2x + 6 \quad \text{rem } 23$$

$$(x^5 + x^4 + x^3 + x^2 + x + 1) \div (x + 1) = ?$$

$$x^4 + x^2 + 1$$