

Name: _____

Date: _____

PC: Do Now

1. Divide $4x^4 + 3x^3 + 2x + 1$ by $x^2 + x + 2$

$$\begin{array}{r}
 4x^2 - x - 7 \\
 \hline
 x^2 + x + 2 \overline{) 4x^4 + 3x^3 + 2x + 1} \\
 \underline{4x^4 + 4x^3 + 8x^2} \\
 -x^3 - 8x^2 + 2x \\
 \underline{-x^3 - x^2 - 2x} \\
 -7x^2 + 4x + 1 \\
 \underline{-7x^2 - 7x - 14} \\
 11x + 15
 \end{array}$$

$$4x^2 - x - 7 + \frac{11x + 15}{x^2 + x + 2}$$

Handwritten notes:

- $-b \downarrow$
- $-c \downarrow$

4	3	0	2	1
-4	1	7	2	14
4	-1	-7	11	15

last two columns represent the remainder

$$4x^2 - x - 7 + \frac{11x + 15}{x^2 + x + 2}$$

Name: _____

PC: Division of Polynomials Partner Activity

Date: _____

Ms. Loughran

Please listen to directions carefully.

Examples:

1. $(14x^2 - 3x + 3x^3 + 7) \div (x + 5)$

$$3x^2 - x + 2 - \frac{3}{x+5}$$

2. $(15x^3 + x^2 + 12x + 12) \div (3x + 2)$

$$5x^2 - 3x + 6$$

3. $\frac{2a^4 - 5a^3 + a^2 - 9a + 6}{a - 3}$

$$2a^3 + a^2 + 4a + 3 + \frac{15}{a-3}$$

4. $\frac{2x^3 + 11x^2 + 10x - 8}{x + 4}$

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

5. $\frac{6t^3 - 7t^2 + 14t - 6}{2t - 1}$

$$3t^2 - 2t + 6$$

6. $\frac{4v^3 - 2v + 24}{2v + 3}$

$$2v^2 - 3v + \frac{7}{2} + \frac{27}{2(2v+3)}$$

7. $\frac{2x^3 - 3x^2 - 12x + 9}{x - 3}$

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

8. $(15 - 14n + 8n^2) \div (4n - 5)$

$$2n - 1 + \frac{10}{4n-5}$$

⑥

$$\begin{array}{r} 2v^2 - 3v + \frac{7}{2} \\ 2v+3 \overline{) 4v^3 + 0v^2 - 2v + 24} \\ \underline{-4v^3 + 6v^2} \\ 6v^2 - 2v \\ \underline{+6v^2 + 9v} \\ 7v + 24 \\ \underline{-7v + \frac{21}{2}} \\ \frac{27}{2} \end{array}$$

$$2v^2 - 3v + \frac{7}{2} + \frac{27}{2(2v+3)} \quad (\Rightarrow)$$

$$2v^2 - 3v + \frac{7}{2} + \frac{27}{2(2v+3)} \quad (\Rightarrow)$$

Homework 11-29

2. $(x^3 - x^2 - 5x + 2) \div (x + 2)$

$$\begin{array}{r|rrrr} -2 & 1 & -1 & -5 & 2 \\ & & -2 & 6 & -2 \\ \hline & 1 & -3 & 1 & 0 \end{array}$$

$$x^2 - 3x + 1$$

4. $(3x^3 - 2x^2 + x - 1) \div (x - 1)$

$$\begin{array}{r|rrrr} 1 & 3 & -2 & 1 & -1 \\ & & 3 & 1 & 2 \\ \hline & 3 & 1 & 2 & 1 \end{array}$$

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

6. $(2x^4 - 3x^2 + 4x - 2) \div (x - 1)$

$$\begin{array}{r|rrrrr} 1 & 2 & 0 & -3 & 4 & -2 \\ & & 2 & 2 & -1 & 3 \\ \hline & 2 & 2 & -1 & 3 & 1 \end{array}$$

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

8. $(x^3 - 27) \div (x - 3)$

$$\begin{array}{r|rrrr} 3 & 1 & 0 & 0 & -27 \\ & & 3 & 9 & 27 \\ \hline & 1 & 3 & 9 & 0 \end{array}$$

$$x^2 + 3x + 9$$

10. $(-\frac{1}{3}x^4 + \frac{1}{6}x^2 - 7x - 4) \div (x + 3)$

$$\begin{array}{r|rrrrr} -3 & -\frac{1}{3} & 0 & \frac{1}{6} & -7 & -4 \\ & & 1 & -3 & \frac{17}{2} & -\frac{9}{2} \\ \hline & -\frac{1}{3} & 1 & -\frac{17}{6} & \frac{3}{2} & -\frac{17}{2} \end{array}$$

$$-\frac{1}{3}x^3 + x^2 - \frac{17}{6}x + \frac{3}{2} - \frac{17}{2(x+3)}$$

$$-\frac{1}{3}x^3 + x^2 - \frac{17}{6}x + \frac{3}{2} - \frac{17}{2(x+3)}$$

12. $(10x^3 - 3x^2 + 4x + 7) \div (2x + 1)$

$$\begin{array}{r|rrrr} \frac{1}{2} & 10 & -3 & 4 & 7 \\ & & -5 & 4 & -4 \\ \hline & 10 & -8 & 8 & 3 \end{array}$$

$$\div 2$$

$$5x^2 - 4x + 4 + \frac{3}{2x+1}$$

$$14. (9x^4 + 6x^3 - 4x + 5) \div (3x - 1)$$

$$\begin{array}{r|rrrrr} \frac{1}{3} & 9 & 6 & 0 & -4 & 5 \\ & & 3 & 3 & 1 & -1 \\ \hline & 9 & 9 & 3 & -3 & 4 \end{array}$$

$$3x^3 + 3x^2 + x - 1 + \frac{4}{3x-1}$$

$$16. (4x^3 - 2x + 2x^2 - 3) \div (2x + 1)$$

$$\begin{array}{r|rrrr} \frac{1}{2} & 4 & 2 & -2 & -3 \\ & & -2 & 0 & 1 \\ \hline & 4 & 0 & -2 & -2 \end{array}$$

$$2x^2 - 1 - \frac{2}{2x+1}$$