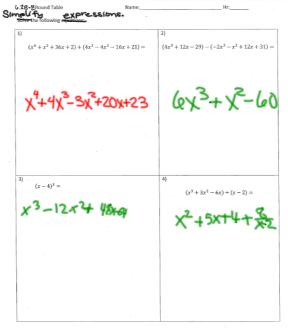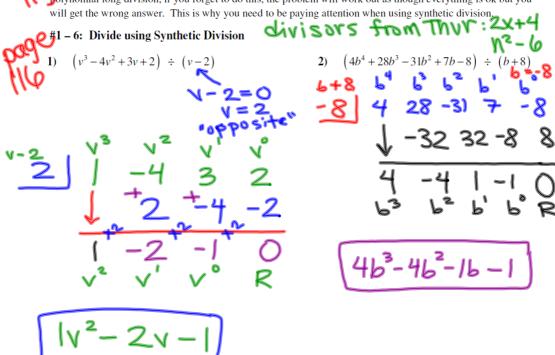## 6.2 Round Table.

Start with the same problem. Once everyone agrees on the same answer, then switch papers.

Everyone must have their own paper and must turn it in with their name on it to receive credit.

Simplify expressions.

Solve the following equations.

1) $(x^4 + x^2 + 36x + 2) + (4x^3 - 4x^2 - 16x + 21) =$	2) $(4x^3 + 12x - 29) - (-2x^3 - x^2 + 12x + 31) =$
$x^4 + 4x^3 - 3x^2 + 20x + 23$	$6x^3 + x^2 - 60$
3) $(x-4)^3 =$	4) $(x^3 + 3x^2 - 6x) \div (x - 2) =$
$x^3 - 12x^2 + 48x - 64$	$x^2 + 5x + 4 + \frac{8}{x-2}$

Basically, this saves you the time of writing down all of the variables and exponents so once you figure it out, you can do these pretty quickly. However, this only works if you are dividing by a divisor of the form "$x - m$", the coefficient of the leading term must be 1 and you must be dividing by a linear term (highest power is 1). If you are dividing by something other than this, you will have to use long division. Just like in polynomial long division, if there are any missing terms, you will have to insert a "zero" place holder for the missing term. Unlike polynomial long division, if you forget to do this, the problem will work out as though everything is ok but you will get the wrong answer. This is why you need to be paying attention when using synthetic division.

page 115

page 116

#1 – 6: Divide using Synthetic Division

divisors from Thur: $2x+4$
$n^2 - 6$

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

$v - 2 = 0$
$v = 2$
"opposite"

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

$v^3 \quad v^2 \quad v^1 \quad v^0$

$v^2 \quad v^1 \quad v^0 \quad R$

$\boxed{1v^2 - 2v - 1}$

2) $(4b^4 + 28b^3 - 31b^2 + 7b - 8) \div (b + 8)$

$b + 8$
-8

$b^4 \quad b^3 \quad b^2 \quad b^1 \quad b^0 = 8$

$$
\begin{array}{c|ccccc}
-8 & 4 & 28 & -31 & 7 & -8 \\
   &   & -32 & 32 & -8 & 8 \\
\hline
   & 4 & -4 & 1 & -1 & 0 \\
\end{array}
$$

$b^3 \quad b^2 \quad b^1 \quad b^0 \quad R$

$\boxed{4b^3 - 4b^2 - 1b - 1}$

#7 – 8: Given one or two of the factors of the polynomial, use synthetic division to find the other factors. Show your thinking! (Do not graph.)

7) $f(x) = 4x^4 + 4x^3 - 57x^2 - 9x + 108$

Factors of this polynomial

are $(x+4)$ and $(x-3)$

1st   2nd

$$-4 \,\big|\, \begin{array}{ccccc} 4 & 4 & -57 & -9 & 108 \\ \downarrow & -16 & 48 & 36 & -108 \\ \hline 4 & -12 & -9 & 27 & 0 \end{array}$$

$4x^3 - 12x^2 - 9x + 27$

$$3 \,\big|\, \begin{array}{cccc} 4 & -12 & -9 & 27 \\ \downarrow & 12 & 0 & -27 \\ \hline 4 & 0 & -9 & 0 \end{array}$$

$4x^2 + 0x - 9 = 0$

$(2x+3)(2x-3)$

List all factors: $(x+4)(x-3)$ $(2x+3)(2x-3)$ List all factors: _____

List all zeros: $x = -4, 3, \dfrac{-3}{2}, \dfrac{3}{2}$

Purple Syllabus

5/7	6.2 D		6.2 D #1-9 (P-105)		☹	☺	☺
5/8	6.2 E		6.2 E #1-7, 12, 13 (P-109)		Ms. Vang's Last Day		
5/11	6.3 A &		6.3A #1-3, 6 (P-113)				
5/12	6.3 B	I can solve polynomial equations.	6.3B #2-8 (P-118)				
5/13	6.3 C		6.3C #1-6 (P-123)				
5/14	Review	Unit 6 Part 1 Review					

★★★★★★★★★★★★★★★★★★★★★★★★★

5/15 TEST DAY!!