Week 18 Algebra 1 Assignment:

Day 1: p. 349 #1-11 odd, 13-22, 25-30
Day 2: pp. 352-353 #2-22 even, 25-29
Day 3: p. 357 #1-15 odd, 19-23
Day 4: pp. 360-361 #1-35 odd, 36-39
Day 5: Chapter 8 test

Notes on Assignment:

Page 349:

Work to show:

#1-11: Answers only is ok if you use the shortcuts shown in class.
#13-22: If it's only a difference of squares or squaring a binomial, you can just write the answer. If it's more than that you need to show the work.
#25-26: Answers only
#27-30: Show work.

#1-11: When squaring a binomial or multiplying the difference of squares, you can use the shortcut, or you can always write it down twice and use FOIL.

#13: First square the binomial and then multiply the result by the same binomial.

#16: Remember that you will be subtracting a quantity. When you square the (x+2) you need to leave the answer in ( ) because the entire quantity is being subtracted.

#19: Multiply 2 of the binomials, and then multiply that answer times the other binomial.

#22: First square the binomial and then multiply the result by the same binomial.

#28: Remember that every term of one trinomial times every term of the other trinomial.

#30: Remember to subtract all of the way through the 2^{nd} trinomial.

Pages 352-353:

Work to show:

#2-22: Write the problem down using the division bar, then cancel and simplify.
#25-30: Show work as needed.

#6-10: When you divide a polynomial by a single term (i.e. a monomial), you must divide each term by the monomial. The easiest way is to write the polynomial and then write the term that you are dividing by underneath each term. For example, #6 will look like this: $\frac{5x^2}{5x}+\frac{25x}{5x}$. Now you are free to cancel within each fraction.

#16-22: Write the polynomial and then write the term that you are dividing by underneath each term. Be careful with the signs.

Page 357:

General notes for this section: When dividing by a binomial, write the binomial out front and the other polynomial under the division bar. (The polynomial under the division sign is called the dividend.) Make sure that if a term is missing in the dividend that you put a 0 to hold its place. For example, for $(x^3+2x-8)\div(x-7)$ the dividend is missing an x^2 term, so when you set up the problem, you will write $x-7\overline{)x^3+0x^2+2x-8}$.

Example of long division: Find $(3x^4-2x^3+6x^2-3x+1)\div(x+2)$

$$x+2\overline{)3x^4-2x^3+6x^2-3x+1}$$

Always look at the lead terms. In this step it is the x in the binomial and the $3x^4$. Ask "What times x will give me $3x^4$?" The answer is $3x^3$. Put this above the $3x^4$.

$$\begin{array}{r} 3x^3 \\ x+2\overline{)3x^4-2x^3+6x^2-3x+1} \end{array}$$

Now multiply the $3x^3$ times the $x+2$ using Distributive.

$$\begin{array}{r} 3x^3 \\ x+2\overline{)3x^4-2x^3+6x^2-3x+1} \\ \underline{3x^4+6x^3} \end{array}$$

At this point we need to subtract. To do this, change the signs and add, as follows:

$$
\begin{array}{r}
3x^3 \\
x+2\overline{)\,3x^4-2x^3+6x^2-3x+1} \\
\underline{-3x^4-6x^3} \\
-8x^3
\end{array}
$$

Now bring down the next term and repeat the process.

$$
\begin{array}{r}
3x^3 \\
x+2\overline{)\,3x^4-2x^3+6x^2-3x+1} \\
\underline{-3x^4-6x^3} \\
-8x^3+6x^2
\end{array}
$$

The lead term is now $-8x^3$. Ask "What times x will give me $-8x^3$?" The answer is $-8x^2$. Put this above the $-2x^3$.

$$
\begin{array}{r}
3x^3-8x^2 \\
x+2\overline{)\,3x^4-2x^3+6x^2-3x+1} \\
\underline{-3x^4-6x^3} \\
-8x^3+6x^2
\end{array}
$$

Now multiply the $-8x^2$ times the $x+2$ using Distributive.

$$
\begin{array}{r}
3x^3-8x^2 \\
x+2\overline{)\,3x^4-2x^3+6x^2-3x+1} \\
\underline{-3x^4-6x^3} \\
-8x^3+6x^2 \\
\underline{-8x^3-16x^2}
\end{array}
$$

At this point we need to subtract. To do this, change the signs and add, as follows:

$$
\begin{array}{r}
3x^3-8x^2 \\
x+2\overline{)\,3x^4-2x^3+6x^2-3x+1} \\
\underline{-3x^4-6x^3} \\
-8x^3+6x^2 \\
\underline{+8x^3+16x^2} \\
22x^2
\end{array}
$$

Now bring down the next term and repeat the process.

$$
\begin{array}{r}
3x^3-8x^2 \\
x+2\overline{)\,3x^4-2x^3+6x^2-3x+1} \\
\underline{-3x^4-6x^3} \\
-8x^3+6x^2 \\
\underline{+8x^3+16x^2} \\
22x^2-3x
\end{array}
$$

The lead term is now $22x^2$. Ask "What times x will give me $22x^2$?" The answer is $22x$. Put this above the $6x^2$ and then multiply using Distributive.

$$
\begin{array}{r}
3x^3-8x^2+22x \\
x+2\overline{)\,3x^4-2x^3+6x^2-3x+1} \\
\underline{-3x^4-6x^3} \\
-8x^3+6x^2 \\
\underline{+8x^3+16x^2} \\
22x^2-3x \\
\underline{22x^2+44x}
\end{array}
$$

At this point we need to subtract. To do this, change the signs and add, as follows:

$$
\begin{array}{r}
3x^3-8x^2+22x \\
x+2\overline{)\,3x^4-2x^3+6x^2-3x+1} \\
\underline{-3x^4-6x^3} \\
-8x^3+6x^2 \\
\underline{+8x^3+16x^2} \\
22x^2-3x \\
\underline{-22x^2-44x} \\
-47x
\end{array}
$$

Now bring down the next term and repeat the process.

$$
\begin{array}{r}
3x^3-8x^2+22x \\
x+2\overline{)\,3x^4-2x^3+6x^2-3x+1} \\
\underline{-3x^4-6x^3} \\
-8x^3+6x^2 \\
\underline{+8x^3+16x^2} \\
22x^2-3x \\
\underline{-22x^2-44x} \\
-47x+1
\end{array}
$$

The lead term is now $-47x$. Ask "What times x will give me $-47x$?" The answer is -47. Put this above the $-3x$ and then multiply using Distributive.

$$
\begin{array}{r}
3x^3-8x^2+22x-47 \\
x+2\overline{)\,3x^4-2x^3+6x^2-3x+1} \\
\underline{-3x^4-6x^3} \\
-8x^3+6x^2 \\
\underline{+8x^3+16x^2} \\
22x^2-3x \\
\underline{-22x^2-44x} \\
-47x+1 \\
\underline{-47x-94}
\end{array}
$$

At this point we need to subtract. To do this, change the signs and add, as follows:

$$
\begin{array}{r}
3x^3-8x^2+22x-47 \\
x+2\overline{)\,3x^4-2x^3+6x^2-3x+1} \\
\underline{-3x^4-6x^3} \\
-8x^3+6x^2 \\
\underline{+8x^3+16x^2} \\
22x^2-3x \\
\underline{-22x^2-44x} \\
-47x+1 \\
\underline{+47x+94} \\
95
\end{array}
$$

Write the remainder at the end of the answer (quotient).

$$
\begin{array}{r}
3x^3-8x^2+22x-47\ R.95 \\
x+2\ \overline{)\ 3x^4-2x^3+6x^2-3x+1} \\
\underline{-3x^4-6x^3} \\
-8x^3+6x^2 \\
\underline{+8x^3+16x^2} \\
22x^2-3x \\
\underline{-22x^2-44x} \\
-47x+1 \\
\underline{+47x+94} \\
95
\end{array}
$$

Work to show:

All problems: Show long division as noted in the examples above.

#7: Write the divisor as $x+3$ instead of $3+x$.

#9: There is no constant term so write a 0 after the 3x.

#11-13: There is a term missing in the polynomial.

#15: The terms are out of order. Don't mix the signs up as you rearrange the terms. The sign in front of the term stays with the term.

#19: Graph this on a number line.

#22: Clear the fractions first.

#23: When you read "varies directly as" translate "=k".

Pages 360-361:

Work to show:

#1-3, 7-9: Answers only

All other problems: Write the problem and show work.

Chapter Review – no notes