Lesson 1.9-Objective- SWBAT divide polynomials by a monomial.

Kickoff- Simplify each of the following

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

2) $(k-3)(k^2-4k+5)$

$k^3+12k^2+17k-5$

3) $(x^2-5)^2$

4) $-2[2x-3(x-5)]$

$-2[-1x+15]$

$2x-30$

$k^3-7k+11$

What do I do when I divide with a variable?

Rule-

Subtract Exponents!!

Examples:

1) $\frac{10x}{5}$

2) $\frac{5}{10x}$

3) $\frac{x^3}{x}$

*Fractions!

4) $\frac{10x^3}{5x}$

5) $\frac{25x^2y^3}{10x^2y}$

Dividing a Polynomial by a Monomial

1) Separate each term to be divided individually
2) Simplify each fraction!

$$\frac{18x^4-10x^2+6x^7}{2x^2}=\frac{18x^4}{2x^2}-\frac{10x^2}{2x^2}+\frac{6x^7}{2x^2}$$

Now, we just reduce each term!

$=9x^2-5+3x^5$

Example: Simplify each of the following.

6) $\frac{10x^4-6x^3+2x}{2x}$

7) $\frac{15x^2y^3+10xy^2}{5xy}$

8) $\frac{8x^3-4x^2+6x}{2x}$

9) $\frac{6a^4b-9a^3b^2+12a^2b^3}{3a^2b}$

10) $\frac{18a^2g+27a^2g^2-9ag^2}{9a^2g}$

11) $\frac{8x^2y-12x^3y^2+10x^2y^3}{4x^2y^2}$

12) $\frac{25x^2y^2+35xy^3+50x^3y^2}{-5xy}$

$\frac{25x^2y^2}{-5xy}+\frac{35xy^3}{-5xy}+\frac{50x^3y^2}{-5xy}$

$-5xy-7y^2-10x^2y$

13) $\frac{14xy-26x^2y^2+16x^3y^3}{4x^2y^2}$

$\frac{14xy}{4x^2y^2}-\frac{26x^2y^2}{4x^2y^2}+\frac{16x^3y^3}{4x^2y^2}$

$\frac{7}{2xy}-\frac{13}{2}+4xy$

14) $\frac{2r^2s^3t+2s^3t^2+rs^4t^3}{s^2t}$

$\frac{2r^2s^3t}{s^2t}+\frac{2s^3t^2}{s^2t}+\frac{rs^4t^3}{s^2t}$

$2r^2s+2st+rs^2t^2$

15) $\frac{x^4y-2x^3y-x^3y^3z}{x^2y}$

16) $\frac{15a^3+3a^2b-6ab}{3a}$

$\frac{15a^3}{3a}+\frac{3a^2b}{3a}-\frac{6ab}{3a}$

$5a^2+3ab-2b$

17) $\frac{-2y^3z+4y^2z^3+6xy^3z^2}{2y^2z}$

$\frac{-2y^3z}{2y^2z}+\frac{4y^2z^3}{2y^2z}+\frac{6xy^3z^2}{2y^2z}$

$-1y+2z^2+3xyz$