

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

$3x^3 + 5x^2 + 6x - 4$ $k^3 + 12k^2 + 7k - 15$

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

$1x^4 - 5x^2 - 5x^2 + 25$ $1x + 13$

$1x^4 - 10x^2 + 25$

$x^3 + 5x^2 + 4x - 4$

$-2[2x - 3x + 15]$

$-2[-1x + 15]$

$2x - 30$

$k^3 - 7k + 11k - 15$

What do I do when I divide with a variable?

Rule-

Subtract Exponents!!

Examples:

1) $\frac{10x}{5} = 2x$ 2) $\frac{5}{10x} = \frac{1}{2x}$ 3) $\frac{x^3}{x^1} = x^2$

*Fractions!

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

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

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

$5x^3 - 3x^2 + 1$

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

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

$3xy^2 + 2y$

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

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

$4x^2 - 2x + 3$

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

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

$2a^2 - 3ab + 4b$

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

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

$2 + 3g - \frac{1g}{a}$

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

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

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

<p>12) $\frac{25x^2y^2+35xy^3+50x^3y^2}{-5xy}$</p> <p>$\frac{25x^2y^2}{-5xy} + \frac{35xy^3}{-5xy} + \frac{50x^3y^2}{-5xy}$</p> <p>$-5xy - 7y^2 - 10x^2y$</p>	<p>13) $\frac{14xy-26x^2y^2+16x^3y^3}{4x^2y^2}$</p> <p>$\frac{14xy}{4x^2y^2} - \frac{26x^2y^2}{4x^2y^2} + \frac{16x^3y^3}{4x^2y^2}$</p> <p>$\frac{7}{2xy} - \frac{13}{2} + 4xy$</p>
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<p>14) $\frac{2r^2s^3t+2s^3t^2+rs^4t^3}{s^2t}$</p> <p>$\frac{2r^2s^3t}{s^2t} + \frac{2s^3t^2}{s^2t} + \frac{rs^4t^3}{s^2t}$</p> <p>$2r^2s + 2st + rs^2t^2$</p>	<p>15) $\frac{x^4y-2x^3y-x^3y^3z}{x^2y}$</p>
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<p>16) $\frac{15a^3+3a^2b-6ab}{3a}$</p> <p>$\frac{15a^3}{3a} + \frac{3a^2b}{3a} - \frac{6ab}{3a}$</p> <p>$5a^2 + 3ab - 2b$</p>	<p>17) $\frac{-2y^3z+4y^2z^3+6xy^3z^2}{2y^2z}$</p> <p>$\frac{-2y^3z}{2y^2z} + \frac{4y^2z^3}{2y^2z} + \frac{6xy^3z^2}{2y^2z}$</p> <p>$-1y + 2z^2 + 3xyz$</p>
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