

Delta Math RECAP

$$\begin{aligned} \text{Ex. 1) } & \frac{-6x^4}{-3x^3} - \frac{27x^3}{-3x^3} \\ & -3x^3(2x+9) \leftarrow \text{PREFER} \\ & 3x^3(-2x-9) \end{aligned}$$

$$\begin{aligned} \text{Ex. 2) } & \frac{60x^3}{10x^3} + \frac{50x^5}{10x^3} \\ & 10x^3(6+5x^2) \end{aligned}$$

Warm Up

March 7, 2019

$$y = mx + b$$

same slope!

1.) Write the equation of a line parallel to $x - y = 6$ that passes through the point $(-7, 4)$.

$$\begin{aligned} -x - x & \\ \frac{-y}{-1} &= \frac{-x + 6}{-1} \\ y &= x - 6 \end{aligned}$$

$$\begin{aligned} m &= 1 \\ 4 &= 1(-7) + b \\ 4 &= -7 + b \\ 11 &= b \end{aligned}$$

$$y = x + 11$$

2.) Find the distance between $(-2, 3)$ and $(2, -3)$. Write your answer as a simplified radical and decimal rounded to the nearest hundredth.

$$d = \sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}$$

$$d = \sqrt{(2 - (-2))^2 + (-3 - 3)^2}$$

$$d = \sqrt{(4)^2 + (-6)^2}$$

$$d = \sqrt{16 + 36}$$

$$d = \sqrt{52}$$

$$d = \sqrt{4 \cdot 13}$$

$$d = \sqrt{4} \cdot \sqrt{13}$$

$$\begin{aligned} d &= 2\sqrt{13} \\ d &= 7.21 \end{aligned}$$

3.) Factor: $\frac{4x^2}{2x} - \frac{10x}{2x}$

GCF!

$$4x^2: 1, 2, 4, x, x$$

$$10x: 1, 2, 5, 10, x$$

$$2x(2x - 5)$$

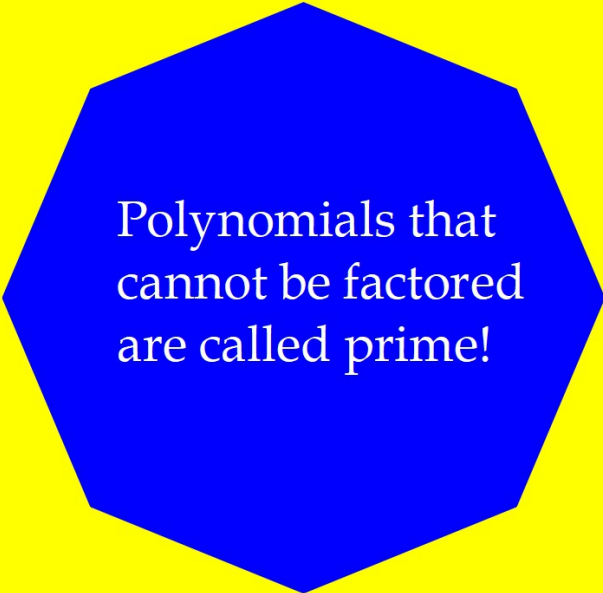
4 Types of Factoring

1.) GCF - *The first step of all factoring exercises!*

2.) Grouping

3.) AC Method

4.) Difference of Squares



Polynomials that cannot be factored are called prime!

Factoring by Grouping (4 TERMS)

Steps	Example
Step 1: Group the first two terms together and the last two terms together.	$(x^3 + 7x^2)(+ 2x + 14)$
Step 2: Factor out the GCF for each binomial.	$x^2(x+7)+2(x+7)$
Step 3: The GCF from each binomial will become one factor and remaining binomial will be the other factor.	$(x^2+2)(x+7)$
Step 4: Use FOIL to check your answer.	

$$\begin{array}{c}
 \frac{(x^3+7x^2)}{x^2} \frac{(+2x+14)}{2} \\
 \text{---} \quad \text{---} \quad \text{---} \quad \text{---} \\
 x^2(x+7) + 2(x+7) \\
 \text{---} \quad \text{---} \\
 (x^2+2)(x+7)
 \end{array}$$

	$x^2 + 2$	
x	x^3	$2x$
$+7$	$7x^2$	$+14$

$\checkmark x^3 + 7x^2 + 2x + 14$

Examples

$$1.) \left(\frac{x^3}{x^2} + 4x^2 \right) \left(\frac{+8x}{8} + \frac{32}{8} \right)$$
$$x^2(x+4) + 8(x+4)$$
$$(x^2+8)(x+4)$$

3.) The GCF from each binomial becomes a factor and the "twins" become one factor.

4.) Use FOIL to check your answer.

1.) Group the first two terms and the last two terms.

2.) Factor out the GCF for each binomial.

$$2.) \left(\frac{a^3}{a^2} + \frac{2a^2}{a^2} \right) \left(\frac{+9a}{9} + \frac{18}{9} \right)$$

$$a^2(a+2) + 9(a+2)$$
$$(a^2+9)(a+2)$$

$$3.) \left(\frac{w^3 + 5w^2}{w^2} - \frac{8w - 40}{-8} \right)$$

$$\textcircled{w^2}(w+5) - \textcircled{8}(w+5)$$

$$(w^2 - 8)(w+5)$$

3.) The GCF from each binomial becomes a factor and the "twins" become one factor.

4.) Use FOIL to check your answer.

1.) Group the first two terms and the last two terms.

2.) Factor out the GCF for each binomial.

$$4.) \left(\frac{k^3 + 2k^2}{k^2} - \frac{5k - 10}{-5} \right)$$

$$\textcircled{k^2}(k+2) - \textcircled{5}(k+2)$$

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

Name _____ Block _____ Date _____

Factor the GCF in the polynomials below.

1.) $6x^2 - 10x$

2.) $3x^5 - 39x^4 + 90x^3$

Simplify the polynomial expressions below.

3.) $(ab^2)^{-4}$

4.) $(5x^2y^3z^4)^3$