Quiz Time!

Factor

1. $12x^2y + 6x^3y^2 + 3x^2y$

$3x^2y(4 + 2xy + 1)$

$3x^2y(2xy + 5)$ 2, 3

Solve

2. $2x + 7 = 4x - 9$

$-2x + 9 \quad -2x + 9$

$16 = 2x$

$\boxed{x = 8}$

Aug 28-10:23 AM

1-2 Factoring Polynomials

Objectives:

1-2a: I can factor a polynomial expression by grouping.
1-2b: I can factor a trinomial.
1-1c: I can solve equations using factoring.

May 31-3:15 PM

Factor by Grouping.

Is there a GCF?

$(4x^2 + 6x)(-2x - 3)$ $(x^3 - 3x^2)(+ x - 3)$

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

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

$2x + 2$

$2(x+1)$

$2x + 2$

Aug 13-12:11 PM

You're up!

$(9x^2 + 6x)(+6x + 4)$ $(4x^2 - 8x)(+ x - 2)$

$3x(3x+2) + 2(3x+2)$ $4x(x-2) + 1(x-2)$

$(3x+2)(3x+2)$ $(x-2)(4x+1)$

$(3x+2)^2$ $(4x+1)(x-2)$

Dec 27-4:00 PM

Riddle...r me this...

$$-12$$

$$\begin{array}{c|c} -2 & 6 \\ \hline -3 & 4 \\ \hline 3 & -4 \end{array}$$

What two numbers multiply to -12, but also add to -1?

$$3, -4$$

Jun 6-8:30 AM

What two numbers multiplies to 15 that also add to 8?

What two numbers multiply to -15 that also add to -2?

Jun 6-8:35 AM

Factor the following polynomial by grouping and the Riddler together.

$$\dfrac{-12}{-4 \mid 3}$$

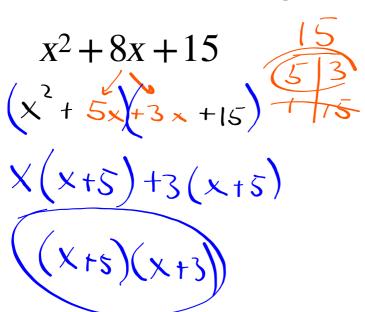$$2x^2 - x - 6$$

$$(2x^2 - 4x)(+3x - 6)$$

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

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

$$2x^2 + 3x - 4x - 6$$

$$2x^2 - x - 6$$

Jun 6-8:38 AM

Factor the following trinomials.

$$x^2 + 8x + 15$$

$$(x^2 + 5x)(+3x + 15)$$

$$x(x+5) + 3(x+5)$$

$$(x+5)(x+3)$$

$$\boxed{15}$$
$$\dfrac{5 \mid 3}{+15}$$

$$3x^2 - 11x - 12$$

$$-2 \quad 18 \quad \dfrac{-36}{\begin{array}{c}-6 \mid 6\\-9 \mid 4\\-12 \mid 3\\+1 \mid 36\end{array}}$$

DNF

Jun 6-8:42 AM

<u>How to Factor a Quadratic</u>

Factoring quadratics in the form $ax^2 + bx + c$

1. Factor out the GCF
2. Multiply a and c
3. Find two factors of ac that add to b
   *If ac is negative, factors must have opposite signs
   *If ac is positive, factors must have same (+ or -) signs
4. Re-write equation with b split up into factors
5. Find the GCF by grouping
6. Factor the GCF of the whole

Dec 27-4:04 PM

Other methods (optional per teacher)

$$\frac{-8}{8} \bigg| -1 \qquad 2x^2 + 7x - 4$$

$$(2x^2 + 8x)(-x - 4)$$

$$2x(x+4) - 1(x+4)$$

$$(x+4)(2x-1)$$

Dec 27-4:18 PM

#5) $5x^2 - 32x + 35$

$5x^2 - 7x - 25x + 35$

$\begin{array}{c} 175 \\ \hline -7 \quad -25 \end{array}$

$2x^2 + 8x + 6$

$2(x^2 + 4x + 3)$

Aug 30-11:20 AM

1-2 Continued

Solve the following equations.

$(x-4)(x+7) = 0$ $3x(x+3)(x-1) = 0$

$x - 4 = 0$ $x + 7 = 0$ $3x = 0$ $x + 3 = 0$ $x - 1 = 0$

$x = 4$ $x = -7$ $x = 0$ $x = -3$ $x = 1$

May 31-11:40 AM

You try:

$$(3x+1)(x-5)=0 \qquad \frac{3(x+2)(x-3)}{3}=\frac{0}{3}$$

$3x+1=0 \qquad x-5=0$
$\quad -1 \ -1$

$\boxed{x=5}$

$(x+2)(x-3)=0$

$\frac{3x}{3}=\frac{-1}{3}$

$x+2=0 \qquad x-3=0$

$\boxed{x=-\frac{1}{3}}$

$\boxed{x=-2} \qquad \boxed{x=3}$

Solve the following equations.

$$x^2+3x-10=0$$

$(x+5)(x-2)=0$

$x+5=0 \qquad x-2=0$

$\boxed{x=-5} \qquad \boxed{x=2}$

-10
$5 \mid -2$
$-5 \mid 2$

$$x^2+x-5=7$$
$\qquad -7 \quad -7$

$x^2+x-12=0$

$(x-3)(x+4)=0$

$\boxed{x=3 \qquad x=-4}$

-12
$-3 \mid 4$
$3 \mid -4$

You try:

$$x^2 + 11x + 24 = 0 \qquad x^2 - 7x + 27 = 5x$$

$(x+8)(x+3) = 0$

$$\begin{array}{cc} -5x & -5x \\ \hline \end{array}$$

$$x^2 - 12x + 27 = 0$$

$x + 8 = 0 \quad x + 3 = 0$

$(x - 9)(x - 3) = 0$

$x = -8 \qquad x = -3$

$x = 9 \qquad x = 3$

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Solve the following equations.

$$-3x^2 - 7x - 4 = 0$$

$-(3x^2 + 7x + 4) = 0$

$-(3x + 4)(x + 1) = 0$

$x = -\dfrac{4}{3} \quad x = -1$

$$\begin{array}{c} 12 \\ \hline 4 \mid 1 \\ 3H \mid 3x \end{array}$$

$$3x^2 + 12x - 63 = 0$$

$3(x^2 + 4x - 21) = 0$

$3(x + 7)(x - 3) = 0$

$x = -7, 3$

May 31-11:49 AM

You try:

$$2x^2 - 13x - 7 = 0 \qquad -6x^2 - 14x - 8 = 0$$

May 31-12:00 PM