Grab GCF Quiz and Bubble Sheet

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- Homework 1.3 Factoring Trinomials Worksheet

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Calendar Math

Quadratic

$f(x) = a(x-h)^2 + k$

a• vertical stretch/shrink
+ |a| > 1 vertical stretch
- |a| < 1 vertical shrink

h• horizontal shift
(x-h) moves to the right
(x+h) moves to the left

k• vertical shift
+k moves up
-k moves down

Reflection• Negative in front reflects the graph over the x•axis

Absolute value• $f(x) = a|x-h| + k$
Square root• $f(x) = \sqrt{x-h} + k$

$\boxed{y = (x-3)^2 + 5}$ $f(x) = a(x-h)^2 + k$
a•1   h•3   k•5
Right 3
Up 5 $f(x) = a|x-h| + k$

$y = -|x+2| - 4$
a•1   h•2   k•-4
reflect over x-axis
left 2
down 4 $f(x)\sqrt{x-h} + k$

$y = \sqrt{x-1} + 4$
h•-1   k•4   right 1
           up 4

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Homework Questions...

#6 $5v^3 + 15v^2$

GCF: $5v^2$

$5v^2(v + 3)$

$5v^3 = 5 \cdot v \cdot v \cdot v$
$15v^2 = 5 \cdot 3 \cdot v \cdot v$

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#11 $3x^2 = 18x^3$

GCF: $3x^2$

$3x^2(1 - 6x)$

$3x^2 : 3 \cdot x \cdot x \cdot 1$
$-18x^3 = -1 \cdot 6 \cdot 3 \cdot x \cdot x \cdot x$

$\dfrac{3 \cdot 1 \cdot x \cdot x}{3 \cdot 1 = 3}$

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#3 $v^2 - v$

GCF: v

$v(v - 1)$

$v^2 : v \cdot v$
$-v : -1 \cdot v$

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#9 $28a^3 + 16a^2$ $28a^3 : (4) \cdot 7 \cdot a \cdot a \cdot a$

GCF $4a^2$ $16a^2 : (4) \cdot 4 \cdot a \cdot a$

$4a^2(7a + 4)$

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15) $4x^3 + 3x^2 + 3x$ $4x^3 : 2 \cdot 2 \cdot x \cdot x \cdot y$

GCF x $3x^2 : 3 \cdot x \cdot x$

$x(4x^2 + 3x + 3)$ $3x : 3 \cdot x$

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$9x^2 + \underline{16}x^2 + 3x$ $9x^3 : 3 \cdot 3 \cdot x \cdot y$

$x(9x^2 + 16x + 3)$ $16x^2 : 16 \cdot x$

$3x : 3 \cdot x$

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1.3 Factoring Trinomials

GCF- The biggest number or term they have in common.

Trinomial- The GCF must be a factor of <u>EVERY</u> term in the polynomial.

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Factor Diagram

$3 \cdot 4 = 12$

Factors   Product

3 and 4 are factors of 12.

$v^2 - v$

$v(v - 1)$
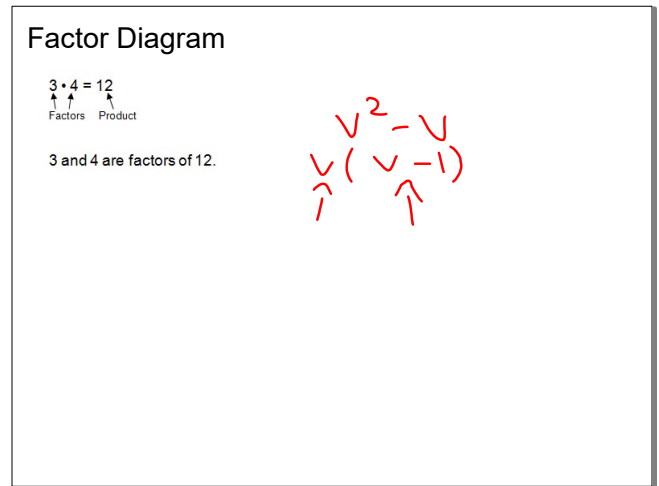
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Steps for factoring a trinomial:

1. Look at the coefficients #'s

2. Look at the variables whole x, y, n, m

3. Identify the GCF every term

4. Write in factored form
   Chart for when factoring a trinomial:

If you start with this…	Factor like this…
$x^2 + bx + c$	$(x + \text{big \#})(x + \text{small \#})$
$x^2 - bx + c$	$(x - \text{big \#})(x - \text{small \#})$
$x^2 + bx - c$	$(x + \text{big \#})(x - \text{small \#})$
$x^2 - bx - c$	$(x - \text{big \#})(x + \text{small \#})$

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Examples

The only factors of a trinomial are 1 and itself.

$x^2 - x + 7$

$(x-7)(x-1)$ 1   7

$-8x$

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ex1) $x^2 + 9x + 20$ $\boxed{ax^2 + bx + c}$

a:1   b:9   C:20

$(x+5)(x+4)$

	x	4
x	x^2	4x
5	5x	20

$x^2 + 5x + 4x + 20$

$x^2 + 9x + 20$

$\boxed{(x+5)(x+4)}$

20   ac
4   5
$b = 20$
2   10
4   5

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$ax^2 \pm bx \pm C$

a   b   C

$a \cdot c$ $a \cdot C = $ factors
added or subtracted
$+/- = b$ $+/- = b$ equal b.

b

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3) $4k^2 + 4k - 24$

GCF:4 $4(k^2 + k - 6)$

a:1   b:1   C:-6

$(k+3)(k-2)$

	k	-2
k	k^2	-2k
3	3k	-6

$k^2 + 3k - 7k - 6$

$4(k^2 + k - 6)$ $4k^2 + 4k - 24$

$\boxed{4(k+3)(k-2)}$

-6
+3   -2
1

96
4
1   6
2   3

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#4 $a^2 - 5a + 36$ GCF: NO

a:1   b:5   C:36

NOT FACTORABLE

36

1   36
2   18
3   12
4   9
6   6

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Homework

#1-6 and 17-20

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