Wednesday, January 9, 2019

middle term = sum

- Warm-up
  - Multiply the following binomials:

$(x - 8)(x + 1)$

$$x^2 + 1x - 8x - 8$$

$$x^2 - 7x - 8$$

$(x - 3)(x - 6)$

$$x^2 - 6x - 3x + 18$$

$$x^2 - 9x + 18$$

- Factoring polynomials

Objectives:
Content: I will factor trinomials with an a value of 1.
Social: I will demonstrate my work to the group as well as the class.
Language: I will write my factoring process clearly for myself and others.

Factoring → Working Backwards

trinomials

If I had a trinomial: $x^2 + 5x + 6$

and factored it to: $(x + m)(x + n)$

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

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

what do I know about the product of m & n?

$m \cdot n = 6$

last term

what are my options?

$3 \; \& \; 2$

$1 \; \& \; 6$

what do I know about the sum of m & n?

$m + n = 5$

middle term

what are my options?

$3 \; \& \; 2$

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Try some

factor it to: $(x + m)(x + n)$

what do I know about the product of m & n?
what are my options?
what do I know about the sum of m & n?
what are my options?

$x^2 + 7x + 12$ → $6 * 2$
$4 * 3$
$12 * 1$

$(x + 4)(x + 3)$

$m^2 + 10m + 21$ → $7 * 3$
$1 * 21$

$(m + 7)(m + 3)$
$(m + 3)(m + 7)$

$(y + 6)(y + 3)$
$y^2 + 9y + 18$

$x^2 + 8x + 12$ $(x + 2)(x + 6)$

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What if I had this trinomial: $x^2 - 6x + 8$
and factored it to: $(x + m)(x + n)$

$(x - 4)(x - 2)$

what do I know about the product of m & n?

$1 * 8 \rightarrow -1 * -8$
$4 * 2 \rightarrow -4 * -2$

what are my options?

what do I know about the sum of m & n? $= -6$

what are my options?

Try some more

factor it to: $(x + m)(x + n)$

what do I know about the product of m & n?
what are my options?
what do I know about the sum of m & n?
what are my options?

$x^2 - 4x + 3$ $1 \cdot 3$ $-1 \cdot -3$

$(x-1)(x-3)$
$(x-3)(x-1)$

$m^2 - 7m + 10$

$(m-2)(m-5)$

$x^2 - 6x + 5$ $(x-5)(x-1)$ $y^2 - 14y + 24$

$(y-2)(y-12)$

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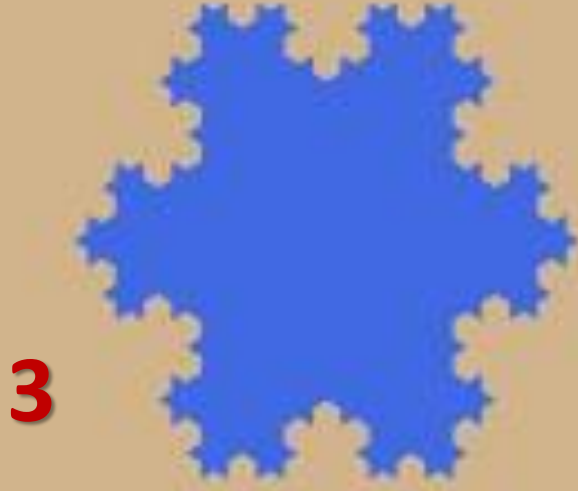**Language**: I will write my factoring process clearly for myself and others.

Brain Break

Which one doesn't belong?

1

2

3

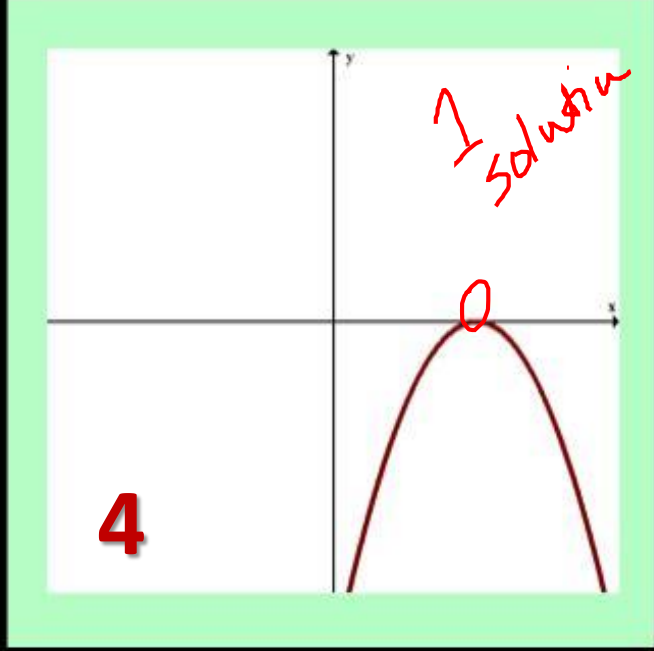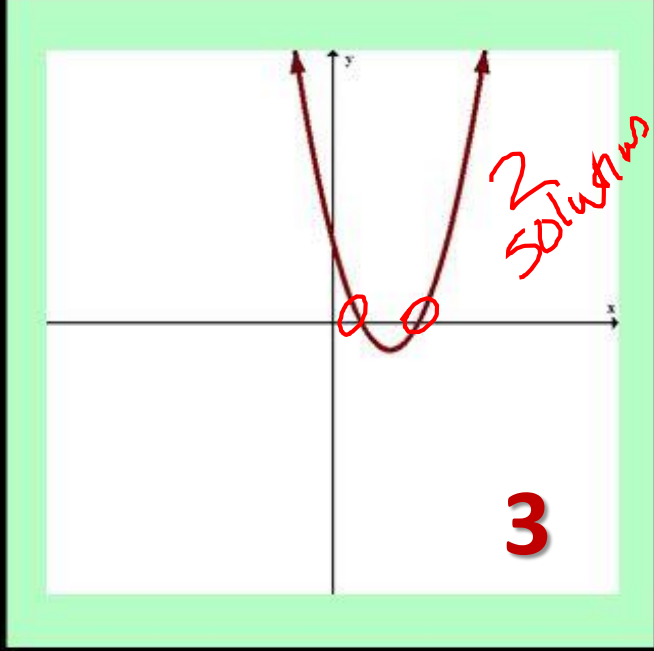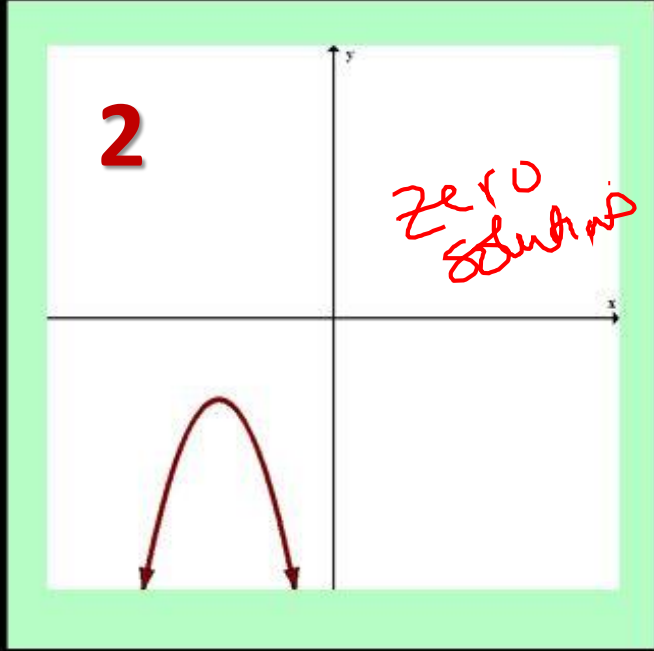**4**

ONLY

Which one doesn't belong?

Which one doesn't belong?

$3x$
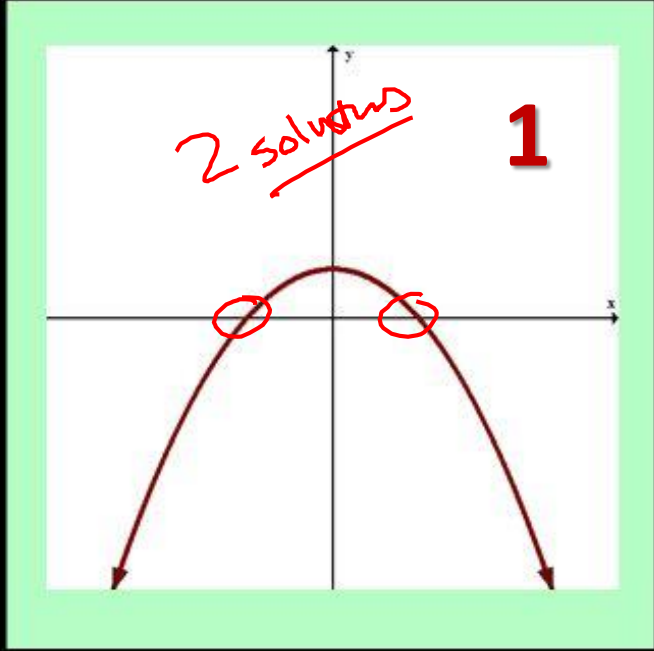
-3

1   2

3   4

$-3x^2$

$-5x$

Which one doesn't belong?

What if I had this trinomial: $x^2 - 7x - 8$

☆ Pay attention
to signs!

and factored it to: $(x + m)(x + n)$

$(x - 8)(x + 1)$

what do I know about the product of m & n? $(x + 1)(x - 8)$

multiply to give -8

what are my options? $+4 \cdot -2$ $-4 \cdot +2$

$+8 \cdot -1$ $-8 \cdot +1$

what do I know about the sum of m & n?

-7

what are my options?

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Try some more

factor it to: $(x + m)(x + n)$
what do I know about the product of m & n?
what are my options?
what do I know about the sum of m & n?
what are my options?

$x^2 - 4x - 32$

$+1 \cdot -32$
$+2 \cdot -16$
$+4 \cdot -8$
$+8 \cdot -4$
$+16 \cdot -2$
$+32 \cdot -1$

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

$x^2 - 5x - 6$

$(x-6)(x+1)$

$m^2 + 6m - 72$

$(m-6)(m+12)$

$y^2 + 2y - 15$

$(y-3)(y+5)$

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Practice