

Algebra 1

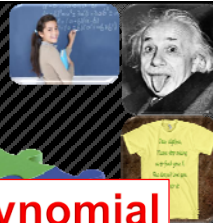
Factoring Quadratics: Part 1



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Quadratic:

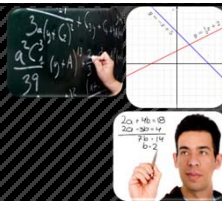
2nd degree Polynomial



$x^2 + ax + b:$

Overview

48 = 2 * 2 * 2 * 2 * 3



Factoring Quadratics: Part 1

$$(x + a)(x + b)$$

$$= x^2 + bx + ax + ab$$

$$= x^2 + (a + b)x + ab$$

← Leading Coefficient of "1"





Factoring Quadratics: Part 1

$$(x + a)(x + b)$$

$$= x^2 + (a + b)x + ab$$





Factoring Quadratics: Part 1

$$(x + a)(x + b)$$

$$= x^2 + (a + b)x + ab$$





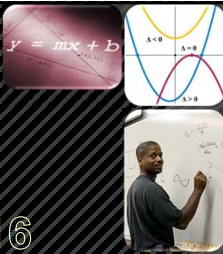
$$x^2 + 4x + 3$$

1 3+1 +3 * +1

~~-3 * +1~~

$$= (x + 3)(x + 1)$$

Factoring Quadratics: Part 1



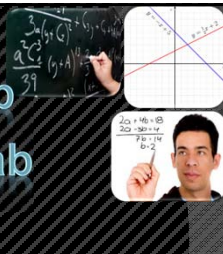
factor:
 $z^2 + 10z + 16$

You Try!



$(z + 8)(z + 2) =$
 $z^2 + 10z + 16$
 1 8 + 2 ~~-16 * 2~~
 8 * 2

You Try!



$(x - a)(x - b)$
 $= x^2 - bx - ax + ab$
 $= x^2 - (a + b)x + ab$

Factoring Quadratics: Part 1

$(x - a)(x - b)$
 $= x^2 - bx - ax + ab$
 $= x^2 - (a + b)x + ab$

$x^2 - 6x + 5 = (x - 5)(x - 1)$

$1 \rightarrow (-5) + (-1) = -6$
 $-5 * -1 = 5$

Factoring Quadratics: Part 1

factor:
 $a^2 - 18a + 32$

$y = mx + b$
 $\Delta < 0$
 $\Delta = 0$
 $\Delta > 0$

You Try!

factor:
 $a^2 - 18a + 32$

$(-16) + (-2) = -18$
 $-16 * -2 = 32$

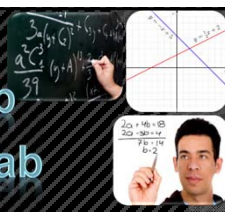
$(a - 16)(a - 2)$

You Try!

$(x - a)(x + b)$
 $= x^2 + bx - ax - ab$
 $= x^2 + (-a + b)x - ab$

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

Factoring Quadratics: Part 1

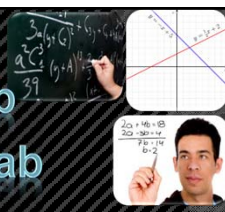


$(x - a)(x + b)$
 $= x^2 + bx - ax - ab$
 $= x^2 + (-a + b)x - ab$

$t^2 - 5t - 14 = (t - 7)(t + 2)$

$\downarrow \quad \quad \downarrow$
 ~~$7 + (-2)$~~ $7 * 2$
 $(-7) + 2$

Factoring Quadratics: Part 1



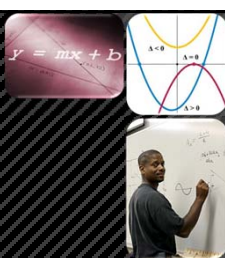
factor:

$x^2 + 2x - 15$

$y = mx + b$

$\Delta < 0$
 $\Delta = 0$
 $\Delta > 0$

You Try!



factor:
 $x^2 + 2x - 15$

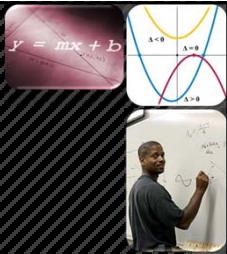
$\swarrow \quad \searrow$

~~$5 + 3$~~ $5 \cdot 3$

$5 + (-3)$

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

You Try!



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