

Do Now: Factor each of the following expressions completely.

1) $x^2 - 121$

$(x+11)(x-11)$

D.O.T.S.

2) $x^2 - 7x + 10$

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

Trinomial

3) $3x^2 + 2x - 5$

$(3x+5)(x-1)$

AC Method
Trinomial

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Solving Quadratics with Factoring

Zero Product Property

If $ab = 0$, then $a = 0$ or $b = 0$ or both $= 0$

Quadratic Equation

an equation whose highest exponent is 2

$$ax^2 + bx + c = 0$$

Ex) Solve the following quadratic:

$$(x-3)(x+2) = 0 \quad ab = 0$$

$$x-3=0 \quad | \quad x+2=0$$

$$x=3 \quad | \quad x=-2$$

Solution $x = -2, 3$

$$x^2 - x - 6$$

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Solving Quadratic by Factoring:

1) $x^2 - 7x + 10 = 0$

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

$x-2=0 \quad | \quad x-5=0$

$x=2 \quad | \quad x=5$

$x=2, 5$

$x^2 - 7x + 10 = 0$ $x=2$	$x^2 - 7x + 10 = 0$ $x=5$
$(2)^2 - 7(2) + 10 = 0$	$(5)^2 - 7(5) + 10 = 0$
$4 - 14 + 10 = 0$	$25 - 35 + 10 = 0$
$-10 + 10 = 0$	$-10 + 10 = 0$
$0 = 0$	$0 = 0$

Steps:

- 1) Set your equation = 0
- 2) Factor the quadratic
- 3) Set each factor = 0
- 4) Solve each equation
- 5) Check each solution by putting into original problem

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Solve for x:

2) $x^2 - 121 = 0$

$(x-11)(x+11) = 0$

$x-11=0 \quad | \quad x+11=0$

$x=11 \quad | \quad x=-11$

$x^2 - 121 = 0$ $x=11$	$x^2 - 121 = 0$ $x=-11$
$(11)^2 - 121 = 0$	$(-11)^2 - 121 = 0$
$121 - 121 = 0$	$121 - 121 = 0$
$0 = 0$	$0 = 0$

3) $3x^2 + 2x - 5 = 0$

$(3x+5)(x-1) = 0$

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

$3x = -5 \quad | \quad x = 1$
 $x = -\frac{5}{3}$

$3x^2 + 2x - 5 = 0$ $x = -\frac{5}{3}$	$3x^2 + 2x - 5 = 0$ $x = 1$
$3\left(-\frac{5}{3}\right)^2 + 2\left(-\frac{5}{3}\right) - 5 = 0$	$3(1)^2 + 2(1) - 5 = 0$
$3\left(\frac{25}{9}\right) - \frac{10}{3} - 5 = 0$	$3(1) + 2 - 5 = 0$
$\frac{25}{3} - \frac{10}{3} - 5 = 0$	$3 + 2 - 5 = 0$
$\frac{15}{3} - 5 = 0$	$5 - 5 = 0$
$5 - 5 = 0$	$0 = 0$

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The Zeroes of a Function

Recall...

Another word for the zeroes of a function are the x - intercepts or roots

Solving for Zeroes

replace
f(x)
↑

1. Set your function equal to zero
2. Factor (Look for a GCF!)
3. Split and solve for x

Feb 28-11:56 AM

Find the zeros of each function:

4) ~~f(a)~~ = $4a^2 - 16$

5) $f(x) = 7x^2 + x$

$$0 = 4a^2 - 16$$

$$0 = 4(a^2 - 4)$$

$$0 = 4(a-2)(a+2)$$

X	a-2=0	a+2=0
	a=2	a=-2

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