By the end of today's class we will be able to:

-determine how many zeros a quadratic has
without graphing the relationship
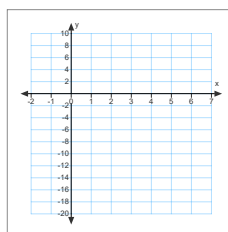
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Find the zeros and the vertex:

$$y = 2x^2 - 12x + 3$$

$$x= \frac{-b \pm \sqrt{b^2 \text{-} 4ac}}{2a}$$

Find the x intercepts using factoring or the
Quadratic Formula

Find the Vertex using the Completing the
Square technique

Verify with graphing technology.

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Graph the following on the calculator and state the x intercepts for each.

X intercepts

$y = -x^2+x+6$

$y = x^2-6x+9$

$y = 2x^2-4x+5$

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Use the Quadratic Formula to find the roots/zeros/x int. of:

$-x^2+x+6=0$          $x= \dfrac{-b \pm \sqrt{b^2-4ac}}{2a}$

$x^2-6x+9=0$

$2x^2-4x+5=0$

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What does it mean when "$b^2$-4ac"
   is negative?

$$x= \frac{-b \pm \sqrt{b^2-4ac}}{2a}$$

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$b^2$-4ac   is called the discriminant

When the discriminant is "positive"

When the discriminant is zero there

When the discriminant is "negative"

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Determine how many solutions/zeros/x intercepts each of the following quadratics would have by using the discriminant calculation. Verify with graphing technology.

$$b^2 - 4ac$$

$$y = -2x^2 + 5x - 7$$

$$y = x^2 + 3x - 8$$

$$y = 4x^2 + 8x + 4$$

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# Home work

## Pg. 185 #1-3, 6, 11

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