7.3 Notes

Thursday, May 7, 2015 4:00 PM

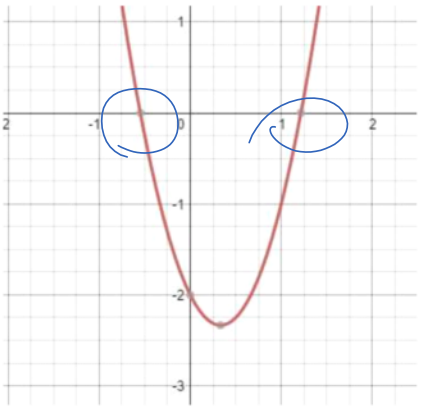
Section 7.3 – Solving Quad Functions by Graphing

- Reminders
  - Quadratic means that the equation has x^2 as the highest degree.
  - Standard Form: $y = ax^2 + bx + c$, where $a \neq 0$.
    - When solving an equation, you want to get 0 on one side and everything else (in order) on the other side.
- Zeros
  - The zeros are x-and y-intercepts.
  - The x-intercepts can tell us the start/end and of things on a parabola, for instance.
  - Y-Intercepts
    - Sub zero in for x and solve. Boom.
    - You will always have a y-intercept.
  - X-Intercepts (called the *Roots*)
    - Three Cases
      - 2 Intercepts
        - Sub zero in for y. Factor to solve. Set each bracket equal to zero. Boom.
        - You may want to use decomposition for this. Factor style is your choice though.
      - 1 Intercept
        - The vertex lies on the x-axis. Still sub zero for y.
      - No Intercepts
        - The parabola opens up and lies above the x-axis
        - The parabola opens down and lies below the x-axis
        - Check the min/max value and direction of parabola before you sub in to save yourself some work.

7.3 Examples

1. Name two examples of a quadratic equation
2. Name two non-examples of a quadratic equation.
3. Put $3x^2 + 2x - 4 = 4x(3 - x)$ into standard form.

4. Estimate the roots of the following graph. → →



x-intercepts

$(-0.5, 0), (1.25, 0)$

5. Verify your solution with the equation $\dot{y} = 3x^2 - 2x - 2$

$y = 3(-0.5)^2 - 2(-0.5) - 2$

$y = 3(0.25) + 1 - 2$

$= 0.75 - 1$

✓ $= -0.25$

$y = 3(1.25)^2 - 2(1.25) - 2$

$y = 3(1.5625) - 2.5 - 2$

✓ $y = 0.1875$

Estimates are approximately correct.

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