Mathematics 10D

Solving Quadratics

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First of all, and most importantly, what is solving?

Solving is to find the value or values of a variable that make the equation true.

Ex1: $3x - 8 = 13$ Ex2: $2x^2 + 3 = 21$

However, how would you solve: $3x^2 - 8x + 4 = 2x + 3$

In the world of quadratics, solving means to find the x-intercepts or the zeros, hence we need to substitute 0 into y, or rewrite the equation so that it equals 0 (which is why I saw to solve for the zeros, meaning find the value(s) of x so that y=0)

Solve!

$$y = 2(x-3)^2 - 18$$

Solve another!

$$y = -5(x+6)^2 + 70$$

The first two were neat and tidy, how about one that isn't!

$$y = -7(x-12)^2 + 19$$

Are there always 2 answers?

$$y = 4(x+8)^2 + 6$$

$$y = -3(x+4)^2$$

10D Name_____

Solving From Vertex Form

Date_____

Solve each question for the zeros. For #13-16, solve for the x-value that gives the included y-value, then state the coordinates.

1) $y = (x + 8)^2 - 4$

2) $y = \frac{1}{3}(x - 6)^2 + 8$

3) $y = -5(x + 8)^2 + 3$

4) $y = -6(x + 2)^2 + 3$

5) $y = 2(x - 9)^2 - 10$

6) $y = (x - 1)^2$

7) $y = -(x + 1)^2 + 8$

8) $y = 2(x + 1)^2 + 8$

9) $y = -\frac{3}{4}(x+7)^2 + 3$

10) $y = -\frac{1}{18}(x+4)^2 + 3$

11) $y = x^2 - 5$

12) $y = 2(x+3)^2 - 8$