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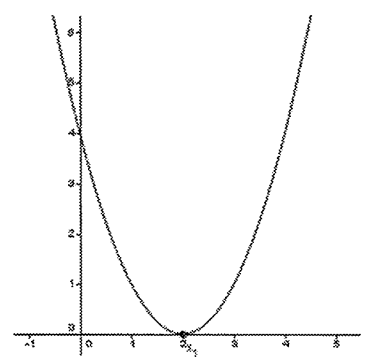
CC ALGEBRA 2

TROICI

LESSON #2: USING THE QUADRATIC FORMULA

Do Now: Can this be the graph $f(x) = (x+2)^2$? Explain.

~~yes~~ NO
yes b/c the root is -2 with a multiplicity of 2



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

THIS FORMULA IS GIVEN TO YOU ON THE REFERENCE SHEET!

Find the zeroes of the following quadratic functions and provide a quick sketch.

1. Find the zeroes to the nearest tenth $y = x^2 + 7x - 2$ ^m \rightarrow NOT POSSIBLE! $-2 = y \text{ int}$

$a=1$
 $b=7$
 $c=-2$

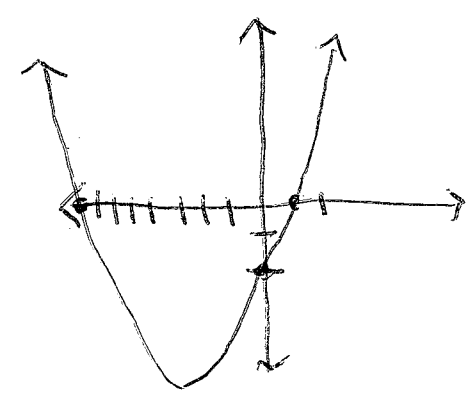
$$x = \frac{-(7) \pm \sqrt{(7)^2 - 4(1)(-2)}}{2(1)}$$

$\cdot 3, -7.3 = \text{ROOTS}$

$$x = \frac{-7 \pm \sqrt{57}}{2}$$

$$x = \frac{-7 + \sqrt{57}}{2} = .2749 \approx .3$$

$$x = \frac{-7 - \sqrt{57}}{2} = -7.2749 \approx -7.3$$



→ must simplify radicals

2. Find the zeroes in simplest radical form $x^2 - 4x = 1 \rightarrow \text{set} = 0!$

$y \text{ int} = -1$
roots = 4.2, -0.2

$a = 1$
 $b = -4$
 $c = -1$

$$x^2 - 4x - 1 = 0$$

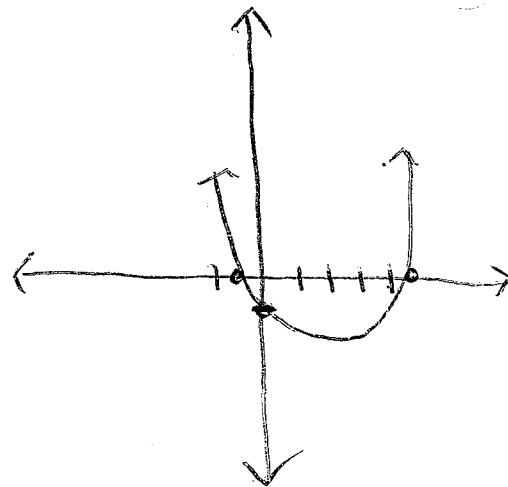
$$x = \frac{-(-4) \pm \sqrt{(-4)^2 - 4(1)(-1)}}{2(1)}$$

$$x = \frac{4 \pm \sqrt{320}}{2}$$

$\sqrt{20}$
 $\sqrt{4} \sqrt{5}$
 $2\sqrt{5}$

$$x = \frac{4 \pm 2\sqrt{5}}{2}$$

$x = 2 \pm \sqrt{5}$



3. Find the zeroes to the nearest tenth $f(x) = -2x^2 + 4x - 1$

$a = -2$
 $b = 4$
 $c = -1$

$$x = \frac{-4 \pm \sqrt{4^2 - 4(-2)(-1)}}{2(-2)}$$

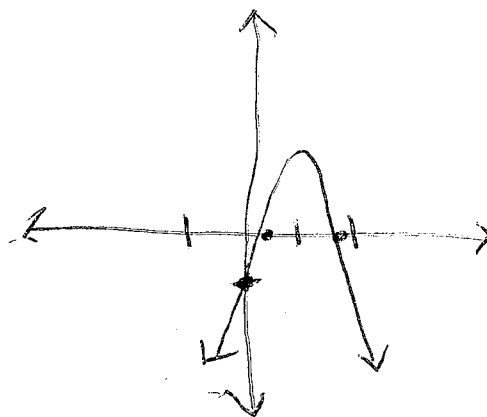
→ Frown!

$y \text{ int} = -1$
roots = -0.3, 1.7

$$x = \frac{-4 \pm \sqrt{8}}{-4}$$

$$x = \frac{-4 + \sqrt{8}}{-4} = -0.3$$

$$x = \frac{-4 - \sqrt{8}}{-4} = 1.7$$



4. Find the zeroes in simplest radical form $12x = 9x^2 + 4 \rightarrow \text{set} = 0 \text{ first!}$

$a = 9$
 $b = -12$
 $c = 4$

$$x = \frac{-(-12) \pm \sqrt{(-12)^2 - 4(9)(4)}}{2(9)}$$

$$x = \frac{12 \pm \sqrt{0}}{18}$$

$$x = \frac{12}{18} = \frac{2}{3} \text{ with a mult of 2!}$$

$-12x - 12x$
 $9x^2 - 12x + 4 = 0$ standard form!

