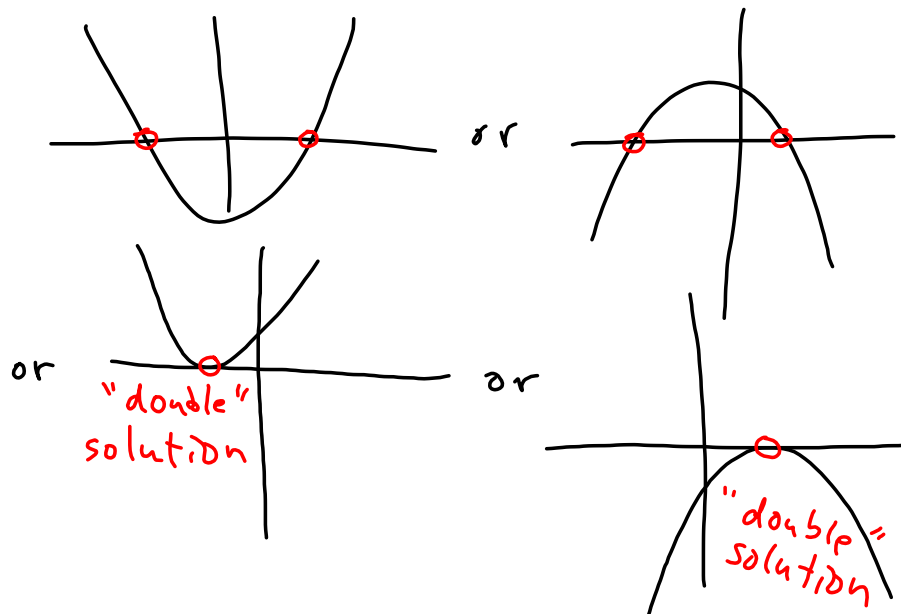


Topic: solving quadratic equations graphically.
(on calculator)

1. $ax^2 + bx + c = 0$
 standard form

2. put $ax^2 + bx + c$ into calculator & graph.

Example: $x^2 - x - 11 = 0$



want to find x -values
 where intersection(s)
 with x -axis occur(s).

To find x :

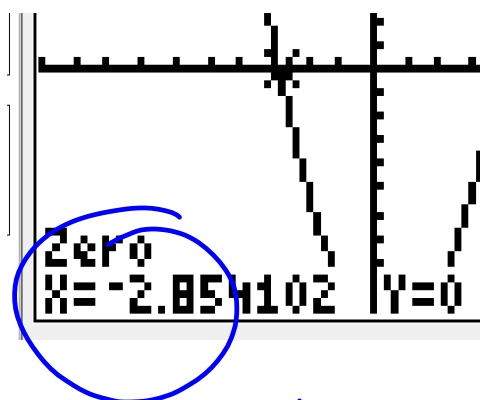
TI-8x: graph.

2nd TRACE (CALC)

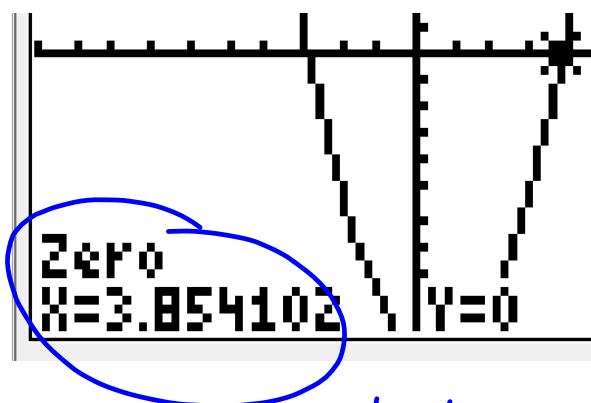
Zero

left bound: enter an x
to left of intersection
either key in or "drive"

right bound: enter an x
to right of intersection
guess: just hit ENTER



one solution
 $x = -2.85$



other solution
 $x = 3.85$

Case 10: graph.

G-Solv.

root

- finds one on left

right arrow

- finds other one

What if graph barely
touches x -axis?

find max or min,

Topic: how to write a quadratic equation if you know the solutions.

Ex: solutions $x=a$ $x=b$

$$(x-a)(x-b) = 0$$

$$\rightarrow x^2 - ax - bx + ab = 0$$

$$x^2 - (a+b)x + ab = 0$$

Ex: solutions $x=-2, x=5$

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

final answer \rightarrow $(x+2)(x-5) = 0$

$$x^2 - 3x - 10 = 0$$

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

answer $\rightarrow 2x^2 - 6x - 10 = 0$

$$-5(x+2)(x-5) \neq$$

Solve: $x^2 - x - 6 = 0$

$$(x+2)(x-3) = 0$$

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

Solutions: $x = -2, x = 3$

$$(x-(-2)) \cdot (x-3) = 0$$

$$(x+2)(x-3) = 0$$

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

What if solution is a fraction?

Ex: solutions $x = -\frac{5}{2}, x = \frac{8}{3}$
 $(-2\frac{1}{2}) (\frac{2}{3})$

eg: $(x + \frac{5}{2})(x - \frac{8}{3}) = 0$

$$x^2 + \frac{5}{2}x - \frac{8}{3}x - \frac{40}{6} = 0$$

$$x^2 + \frac{15}{6}x - \frac{16}{6}x - \frac{40}{6} = 0$$

$$x^2 - \frac{1}{6}x - \frac{40}{6} = 0$$

$$6x^2 - x - 40 = 0$$

Topic: finding where 2 quadratic fns intersect.
 (algebraically)

Ex: $y_1 = 3x^2 - 5x + 11$

$$y_2 = -2x^2 + 3x - 5$$

where intersect?

$$3x^2 - 5x + 11 = -2x^2 + 3x - 5$$

standard
 for m. \rightarrow

$$5x^2 - 8x + 16 = 0$$

solve for x