

Chapter 1

Graphs

Section 3

Solving Equations Using a Graphing Utility

*If you have an equation that is in the form:

$$0 = \text{expression}$$

Type $y_1 = \text{expression}$ and use zero command from calc menu to find solutions

*solutions = all x-intercepts

*If you have an equation that is in the form:

$$\text{expression}_1 = \text{expression}_2$$

Type $y_1 = \text{expression}_1$ and $y_2 = \text{expression}_2$ then use intersect command from calc menu to find solutions

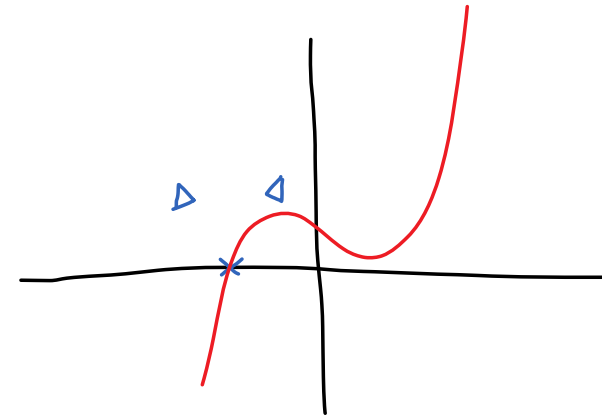
*solutions = all the x values at the points of intersections

Example 1 – Using ZERO (or ROOT) to Approximate Solutions of an Equation

Find the solution(s) of the equation $x^3 - x + 1 = 0$. Round answers to two decimal places.

Solutions \rightarrow where it crosses the x-axis

crosses the x-axis once \rightarrow 1 solution



2nd \rightarrow TRACE \rightarrow Zero \rightarrow left bound enter \rightarrow right bound enter \rightarrow guess

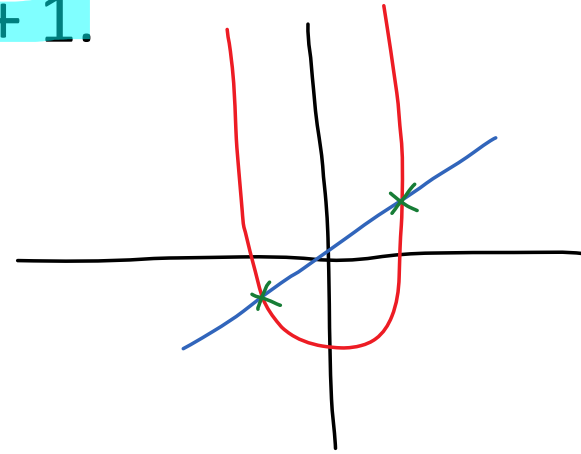
solution \rightarrow -1.32

Example 2 – Using INTERSECT to Approximate Solutions of an Equation

Find the solution(s) to the equation y_1
 $4x^4 - 3 = 2x + 1$ y_2

Solutions → where they intersect

Intersect two times → two solutions



2nd → TRACE → Intersect → 1st curve enter → 2nd curve enter → guess

Solutions:

1st point: (-.87, -.73)

2nd point: (1.12, 3.23)

EXIT SLIP