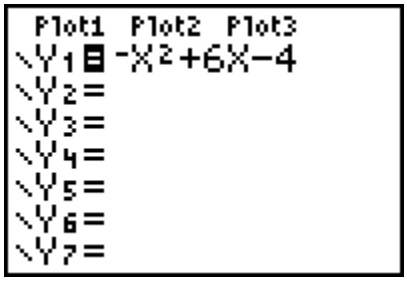
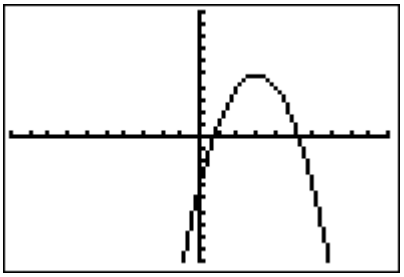
TI 83/84: Finding x-intercepts on your calculator:

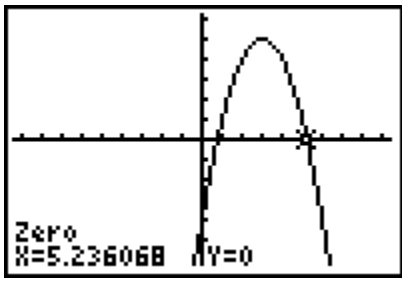
- ZOOM Standard.
- Enter this equation, then press GRAPH



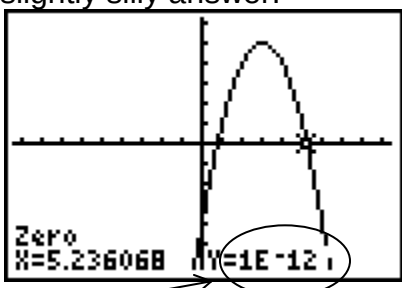


- Press 2nd, then CALC (above the TRACE key).
- Choose 2: zero.
  If you have a TI – 86: Press GRAPH, More, Math, Root
  If you have a TI – 89: Press GRAPH, F5: Math, 2:Zero
- The calculator will ask you for a left bound, a right bound, and a guess for the x-intercept. You can enter these by using your left and right arrows to move the cursor to the proper x-value, then pressing ENTER. On most calculators, you can also just type in your three numbers.
  - A left bound is some x-value to the left of your x-intercept.
  - A right bound is some x-value to the right of your x-intercept.
  - The guess should be as close to the x-intercept as you can get.
- After you press ENTER for your guess at the x-intercept, the calculator will try a lot of numbers near your guess to try and find the value of the function closest to zero. The better your guess is, the more likely the calculator is to hit the answer exactly. (If it gets it a little bit wrong, it will only be by a millionth of a unit or so -- but it can make your answer look silly.)

exact answer:



slightly silly answer:



What is "1E-12"? Remember, that's scientific notation -- it means 1×10^{-12}, which equals 0.000000000001, which is almost equal to 0. Again, it's rounding error, and we should just call it 0.

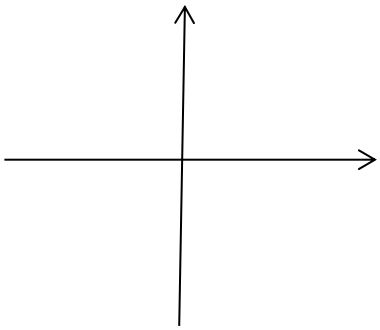
Practice for Finding *x*-intercepts

Find all x-intercepts of the following functions, rounding to the hundredths place.

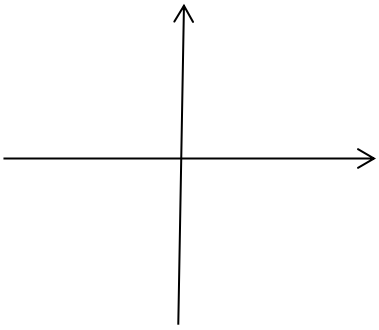
- Graph the equation on your calculator. ZOOM Standard is a good scale.
- Sketch each graph, and circle the x-intercepts.
- Then, use 2^{nd} CALC zero on your calculator to get the exact answers.

(Some answers are at the bottom of the page!)

(1) $y = x^3 + 2x^2 - x - 1$



(2) $y = |x^2 + 5x - 4| - 4$



(1) x = -2.25, -0.55, 0.80