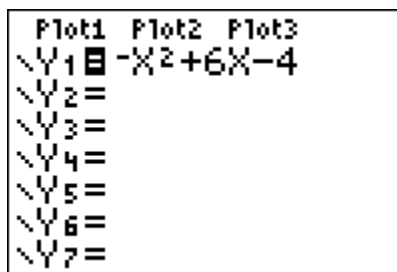
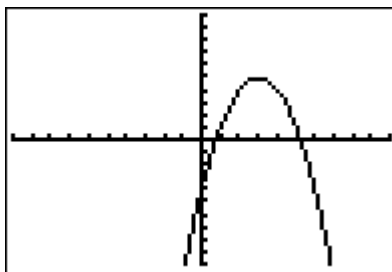


## TI 83/84: Finding Maximums and Minimums On Your Calculator:

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

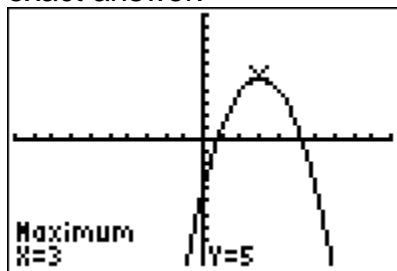


```
P1ot1 P1ot2 P1ot3
Y1 = -X^2+6X-4
Y2 =
Y3 =
Y4 =
Y5 =
Y6 =
Y7 =
```

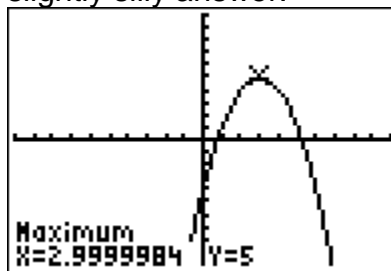


- Press **2nd**, then **CALC** (above the **TRACE** key).
- Choose **4: maximum** or **3: minimum**.
  - If you have a TI - 86: Press **GRAPH**, **More**, **Math**, **FMax** or **FMin**
  - If you have a TI - 89: Press **GRAPH**, **F5: Math**, **4: Maximum** or **3: Minimum**
- The calculator will ask you for a left bound, a right bound, and a guess for the maximum or minimum. You can enter these by using your left and right arrows to move the cursor to a reasonable 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 maximum or minimum.
  - A right bound is some x-value to the right of your maximum or minimum.
  - The guess should be as close to the maximum or minimum as you can get.
- After you press **ENTER** for your guess at the maximum or minimum, the calculator will try a lot of numbers near your guess to try and find the value of the function that's biggest (or smallest). 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:



*If you get one of these silly answers, either round it off to what seems reasonable, OR calculate the maximum (or minimum) again, and use what you think the correct answer is as your guess. If it really is the correct answer, your calculator should stay on it.*

## Practice for Finding Maximum and Minimum Values

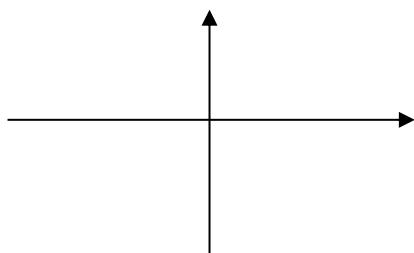
For each function:

- graph the function on your calculator (ZOOM Standard is a good scale).
- sketch the graph on this paper,
- circle the maximums and minimums,
- then find their coordinates by using your calculator.

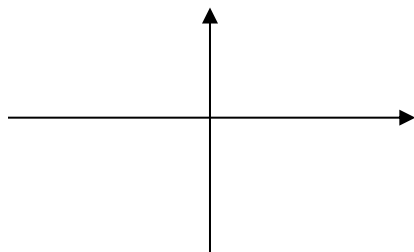
Key point: these will be "local" maximums and minimums, or the points that are higher or lower than all the points that are near them.

- Round decimals to two places.
- *Some answers are at the bottom of this page!*

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



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



(1) Max: (-1.55, 1.63) Min: (0.22, -1.11)