

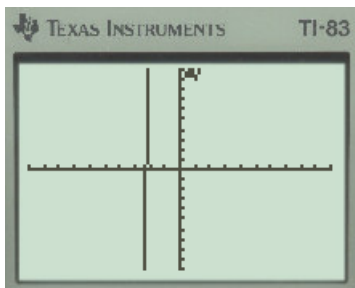
Worksheet 1 - Calculator Skills

Instructions for TI-84

Let $f(x) = x^5 + 3x^2 - 12x + 17$ and $g(x) = e^{3x} - 15x + 12$

1. Graph $f(x)$ and $g(x)$ on the same window:

$\boxed{Y=}$ $\backslash Y_1 = f(x)$ and $\backslash Y_2 = g(x)$ \boxed{GRAPH}

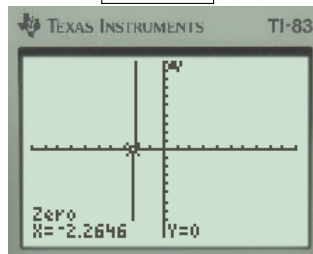


$\boxed{2ND}$ \boxed{TRACE} highlight, 2: zero, \boxed{ENTER}

Left Bound? use $\boxed{\leftarrow}$ until left of zero, \boxed{ENTER}

Right Bound? use $\boxed{\rightarrow}$ until right of zero, \boxed{ENTER}

Guess? \boxed{ENTER}

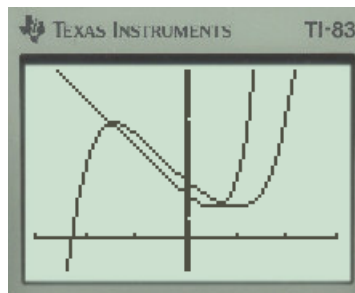
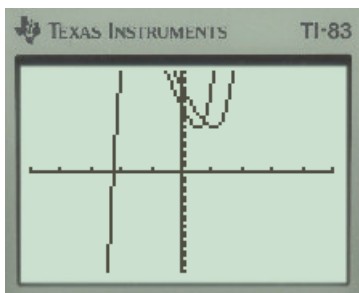


2. Find the zeros of $f(x)$:

3. Change the window to $[-5, 5] \times [-20, 20]$ and then $[-3, 3] \times [-10, 50]$

\boxed{WINDOW} $Xmin = -5, Xmax = 5,$
 $Ymin = -20, Ymax = 20$ \boxed{GRAPH}

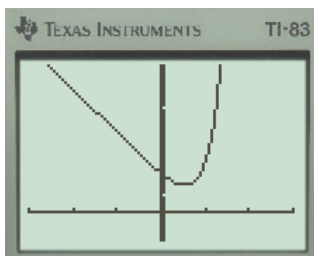
\boxed{WINDOW} $Xmin = -3, Xmax = 3,$
 $Ymin = -10, Ymax = 50$ \boxed{GRAPH}



- To change window to $[-10, 10] \times [-10, 10]$: \boxed{ZOOM} 6: ZStandard
- To trace the first function $Y_1 = f(x)$: \boxed{TRACE} use $\boxed{\leftarrow}$ and $\boxed{\rightarrow}$ to trace
- To trace the second function $Y_2 = g(x)$: \boxed{TRACE} $\boxed{\uparrow}$ use $\boxed{\leftarrow}$ and $\boxed{\rightarrow}$ to trace

4. Turn off $f(x)$, graph $g(x)$ in $[-3, 3] \times [-10, 50]$

$\boxed{Y=}$ $\backslash Y_1 \equiv f(x)$ unhighlight = \boxed{GRAPH}



5. Evaluate $f(2), f(12.8), g(7), g(2.6)$

$\star \boxed{2ND}$ \boxed{TRACE} highlight 1: Value, \boxed{ENTER}

$f(2)$: $\boxed{2}$ \boxed{ENTER} $Y_1 = 37$

$f(12.8)$: Change window to include $X = 12.8$, $[-3, 13] \times [-10, 50]$ repeat step \star

$\boxed{12.8}$ \boxed{ENTER} $Y_1 = 343952.3$

$g(7)$: $\boxed{7}$ \boxed{ENTER} $\boxed{\uparrow}$ $Y_2 = 1.31882E9$

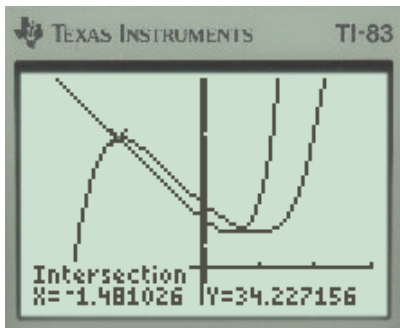
$g(2.6)$: $\boxed{2.6}$ \boxed{ENTER} $Y_2 = 2413.602$

6. Find the point(s) of intersection of $f(x)$ and $g(x)$:

2ND **TRACE** 5: intersect **ENTER**

First Curve? Trace near intersection point **ENTER**

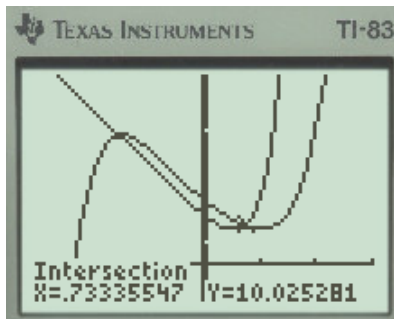
Second Curve? **ENTER** Guess? **ENTER**



2ND **TRACE** 5: intersect **ENTER**

First Curve? Trace near intersection point **ENTER**

Second Curve? **ENTER** Guess? **ENTER**



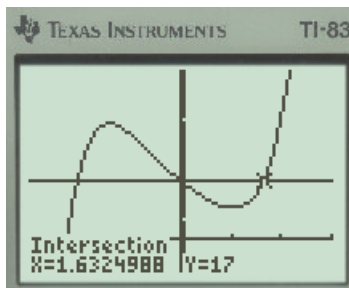
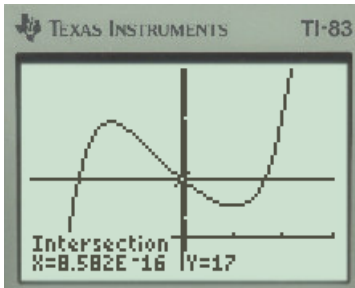
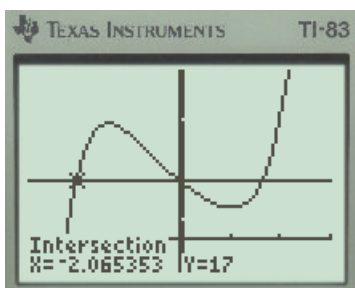
7. Find the value of x that makes $f(x) = 17$

Y= \setminus $Y_2 = 17$ **GRAPH**

2ND **TRACE** 5: intersect **ENTER**

First Curve? Trace near intersection point **ENTER**

Second Curve? **ENTER** Guess? **ENTER**



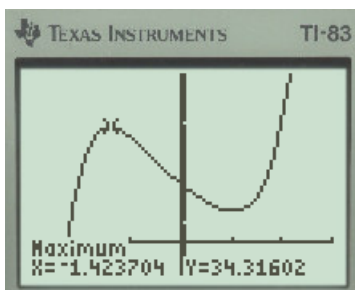
8. Find the local maximum and minimum of $f(x)$:

2ND **TRACE** 4: maximum **ENTER**

Left Bound? use **←** until left of max, **ENTER**

Right Bound? use **→** until right of max, **ENTER**

Guess? **ENTER**

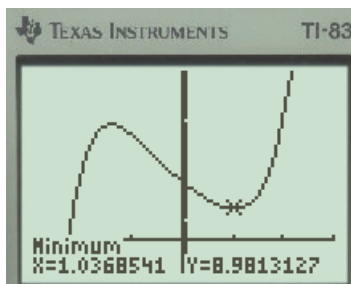


2ND **TRACE** 3: minimum **ENTER**

Left Bound? use **←** until left of min, **ENTER**

Right Bound? use **→** until right of min, **ENTER**

Guess? **ENTER**



Homework Assignment: Start with your calculator in ZStandard mode.

1. Graph $f(x) = 3x^3 - 5x^2 - 9x + 2$ in your calculator. Change the window to show all local maxima and minima as well as zeros. Sketch the graph below.
2. List all local maxima and minima as coordinates, rounding to the nearest thousandth.
3. List all zeros as coordinates, rounding to the nearest thousandth.
4. Find the y -intercept using your calculator.
5. Graph $g(x) = -3x$ with $f(x)$ and find all three intersection points, rounding to the nearest thousandth.
6. Sketch the two graphs together below and label all zeros, intersection points, maxima, minima, and the y -intercept. Be as neat as possible and feel free to use other colors.

Comments/Questions: If you're struggling with your calculator, please feel free to write some questions below. I'll either answer them here, or I'll make sure we look over them in student hours. Your calculator is your best friend, so make sure you know how to use it to its full potential!