

GC workshop Answers

Example 1:

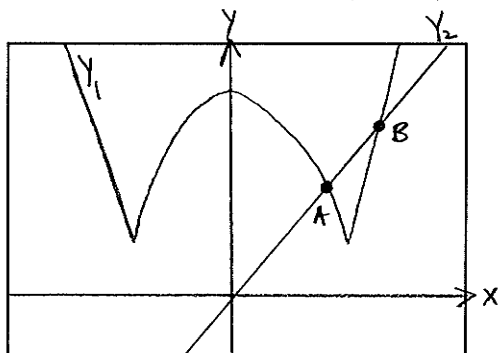
$$\sqrt{5} + \frac{3}{2 \times 5} - \pi \approx -0.606$$

$$\frac{21(3^4) + 73}{5 - 7(9.2)} \approx -29.865$$

I have shown two different ways you could enter the calculation.

Example 2:

Method 1: enter $Y_1 = 4|x^2 - 7| + 9$ and $Y_2 = 8x - \sqrt{3}$



$[-5, 5]$ by $[-10, 40]$

$$Y_1 = 4|x^2 - 7| + 9$$

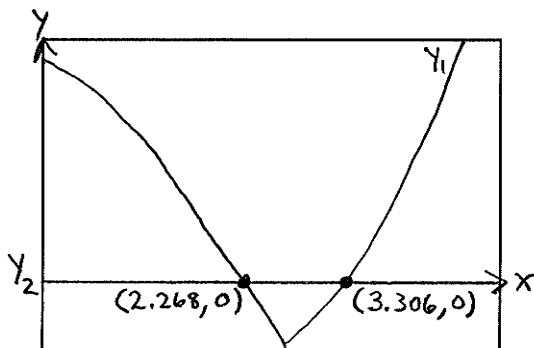
$$Y_2 = 8x - \sqrt{3}$$

$$A \approx (2.268, 16.416)$$

$$B \approx (3.306, 24.715)$$

Solution: $x \approx 2.268, 3.306$

Method 2: enter $Y_1 = 4|x^2 - 7| + 9 - (8x - \sqrt{3})$ and $Y_2 = 0$



$[0, 5]$ by $[-10, 40]$

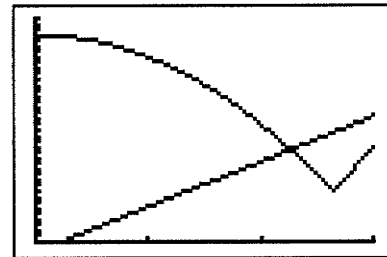
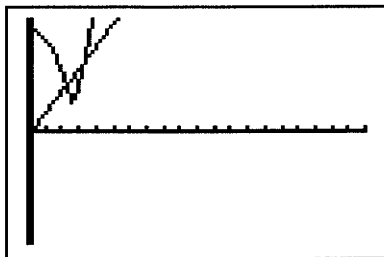
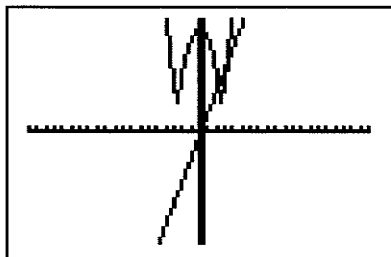
$$Y_1 = 4|x^2 - 7| + 9 - (8x - \sqrt{3})$$

$Y_2 = 0$ (or could just enter Y_1 as shown and use the Zero function. No Y_2 necessary in that case.)

Solution: $x \approx 2.268, 3.306$

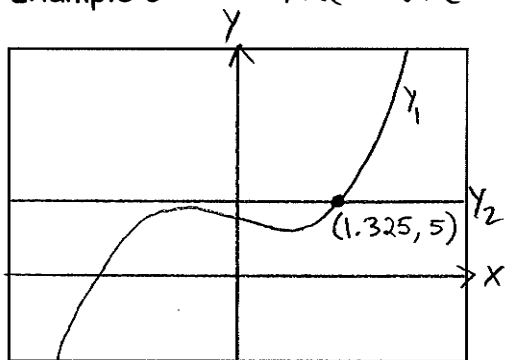
Your window dimensions do not need to be the same as mine, but your window should show all of the intersection points and make good use of space.

Some bad windows for Example 2 using Method 1:



The first two windows make poor use of space. You can obtain the solution from these windows, but the graphs are squished into a small portion of the window. The third window makes good use of space, but does not show all of the intersection points, so you will not get the full solution.

Example 3: You are solving $f(x)=5$ i.e. $x^3-x+4=5$



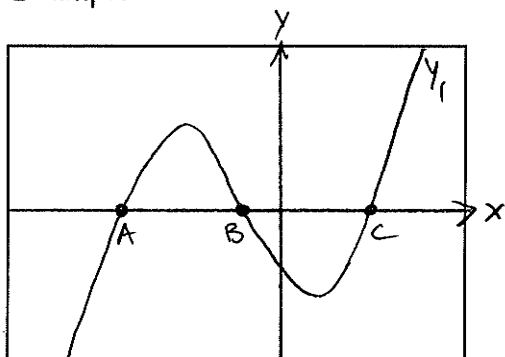
$$y_1 = x^3 - x + 4$$

$$y_2 = 5$$

Solution: $x \approx 1.325$

$[-3, 3]$ by $[-5, 15]$

Example 4:



$$y_1 = x^3 + 3x^2 - 4x - 7 \quad \text{want } y_1 \geq 0$$

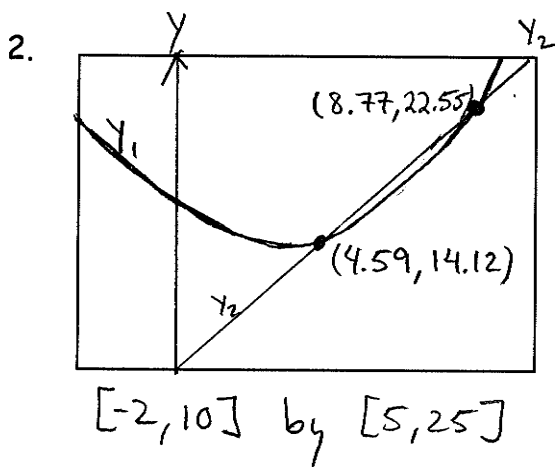
$$A \approx (-3.57, 0) \quad B \approx (-1.14, 0)$$

$$C \approx (1.71, 0)$$

Solution: $[-3.57, -1.14] \cup [1.71, \infty)$

$[-5, 3]$ by $[-12, 12]$

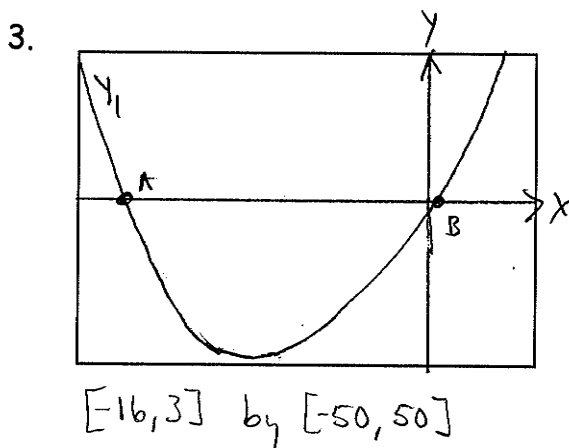
Solutions to Practice Exercises



$$Y_1 = 0.3x^2 - 2x + 17$$

$$Y_2 = 2x + 5$$

Solution: $x \approx 4.59, 8.77$



$$x^2 + 13x - 4 \leq 0 \quad \text{want } y_1 \leq 0$$

$$Y_1 = x^2 + 13x - 4$$

$$A \approx (-13.30, 0) \quad B \approx (0.30, 0)$$

Solution: $[-13.30, 0.30]$