

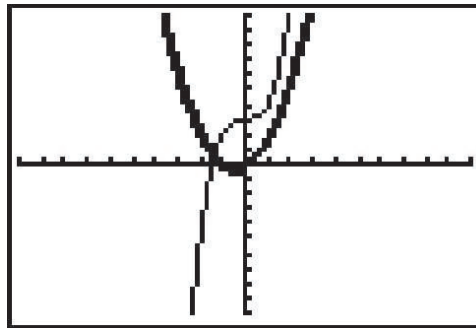
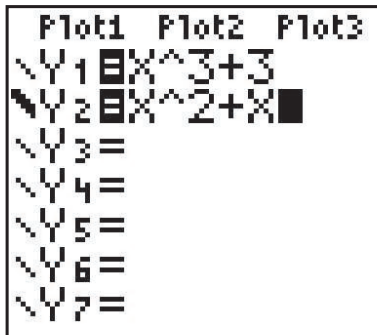
# Using the Intersect Function

**Problem:** Solve the equation:

$$x^3 + 3 = x^2 + x$$

graphically.

**Solution:** First, we let  $y_1 = x^3 + 3$  and  $y_2 = x^2 + x$  and graph both of these equations in the standard window. To make the graph of  $y_2$  thicker, scroll all the way to the left of the equation after you've entered it and press **ENTER** once. The slanted line should change thickness.



The solution to the given equation is the  $x$ -coordinate of the point of intersection of the two graphs (i.e. when  $y_1 = y_2$ ). To find the intersection point, we will use the *intersect* function:

- (1) Access the **CALC** menu by pressing **2ND** and then **TRACE**.
- (2) Scroll down to **5:intersect** and press **ENTER**.
- (3) You are asked for the first curve. Just press **ENTER**.
- (4) You are asked for the second curve. Press **ENTER** again.
- (5) You are asked for a guess. You may either:
  - (a) Enter the  $x$ -coordinate of a point on the graph that is very close to the intersection (say,  $x = 1$ ) OR
  - (b) Scroll along the graph until the cursor is near the intersection.

Press **ENTER**.

The calculator will give you the  $x$  and  $y$  coordinates of the point of intersection:

Intersection:  $x = -1.359304$ ,  $y = 0.48840351$