Solving Linear Equations Graphically

Finding the point of intersection (break-even point) for two equations

1. Enter the first equation as Y_1 and the second equation as Y_2.

2. Enter window settings that will encompass the data and the anticipated projected values. (Verify that the point of intersection is visible in the window. If not, adjust the window settings until you see the point of intersection.)

3. GRAPH to draw the graphs.

4. Find the point of intersection:
   2nd TRACE CALCULATE 5:Intersection
   First curve? ENTER
   Second curve? ENTER
   Guess? ENTER

5. Value of X= ___ is the point at which the *y*-value for both Y_1 and Y_2 are equal (called the point of intersection or the break-even point).

Example 4 (p. 221)

1. $C_1(x) = 575 + .07x$ Enter as Y_1.

2. $C_2(x) = 825 + .04x$ Enter as Y_2.

3. Use the following window settings: [0, 10,000, 1000] by [500, 12,000, 1000]

4. Press GRAPH to draw the graphs.

5. Find the point of intersection (break-even point):

   2nd TRACE CALCULATE 5:Intersection
   First curve? ENTER
   Second curve? ENTER
   Guess? ENTER

6. X= 8333.3333...

   Interpretation: The refrigerator that is more expensive to buy but cheaper to operate will start to save money after running for 8333 hours (or about 347 days).