

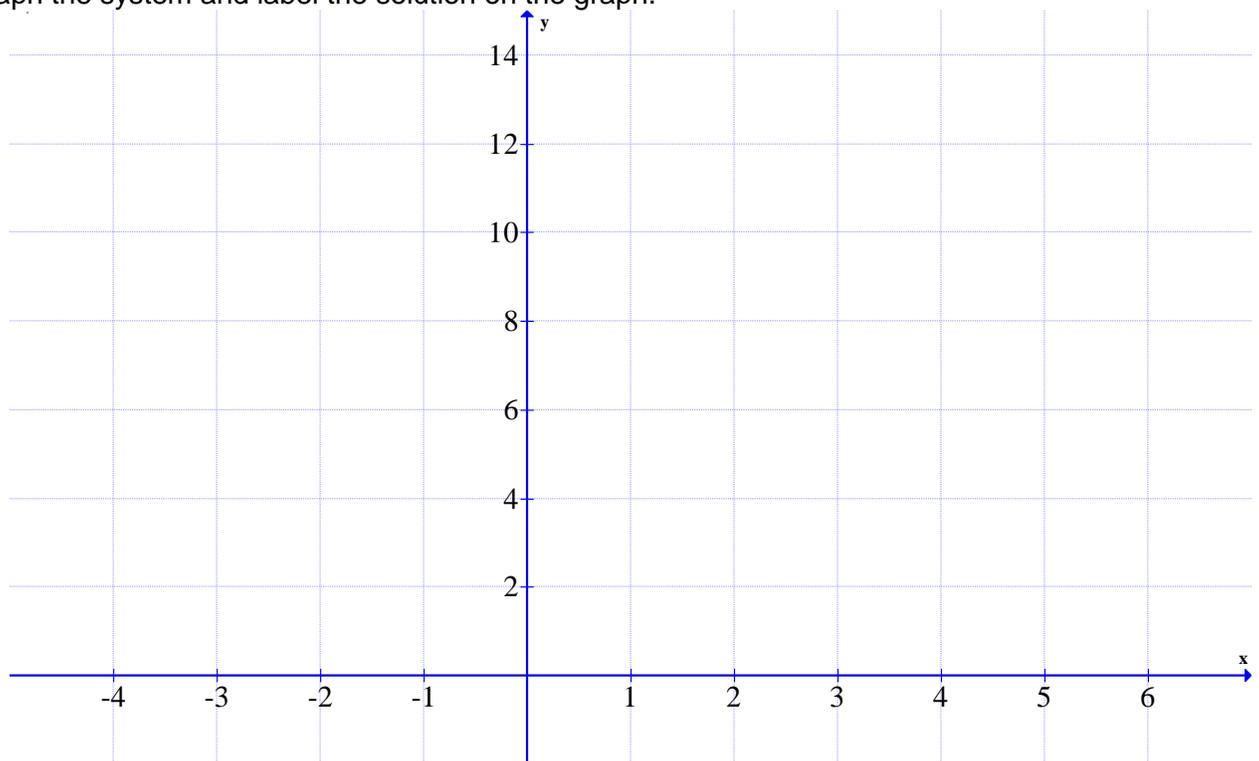
TRIS 92: Exploring Systems

1. Solve the following system of equations algebraically:

$$y = 8$$

$$y = 5x - 12$$

2. Graph the system and label the solution on the graph.



3. Solve the equation: $5x - 12 = 8$

4. How does the equation in #3 relate to the system of equations in #1-2?

Solving systems by graphing on your calculator:

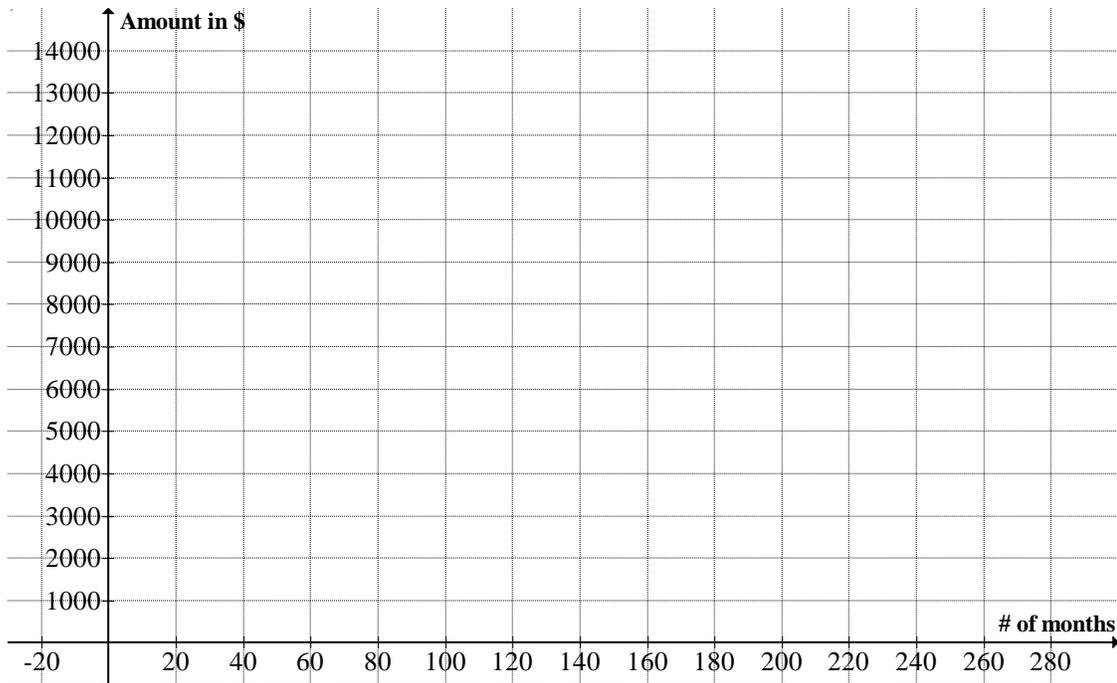
Enter both equations into calculator <ul style="list-style-type: none"> • Hit $y=$, type first equation into y_1, then type second equation into y_2
Open up the systems operation <ul style="list-style-type: none"> • Hit 2^{nd}, Trace, 5:Intersection
First curve <ul style="list-style-type: none"> • Use your cursor to move to the first equation. Hit enter.
Second curve <ul style="list-style-type: none"> • Your cursor will automatically move to the second equation, but be sure by looking at the equation in the top corner. Hit enter.
Guess <ul style="list-style-type: none"> • This function doesn't do anything other than allow you to position the cursor near the intersection if you want. Hit enter.

- How could you write the equation $3 + 2x = -1$ as a system of equations? Find the solution to the system using the graphing calculator.
- How could you write the equation $1.7 = 5(0.75)^x$ as a system of equations? Find the solution to the system using the graphing calculator.
- Two friends are given \$1000 at their high school graduation by their parents before going to college. The first friend, Sherri, decides that she's going to invest the \$1000 in an account that grows by 1.3% each month. The second friend, Gord (who has a healthy fear of banks), decides that he's going to put the \$1000 in a drawer and add \$50 each month to his drawer.

Let **S** represent the amount in dollars that Sherri has in her account; let **G** represent the amount in dollars that Gord has in his account; and let **t** represent time in months.

- Is Sherri's investment linear or exponential?

- b. Write an equation for Sherri's investment.
- c. Is Gord's investment linear or exponential?
- d. Write an equation for Gord's investment.
- e. Now use your calculator to graph the same functions using the following window:
 $X_{min}:-10$ $X_{max}: 300$ $X_{scale}: 20$ $Y_{min}=-10$ $Y_{max}=15,000$ $Y_{scl}=1000$



Solve Sherri and Gord's system on your calculator.

- f. What are the two intersection points?
- g. Describe the two intersection points in the context of the problem.