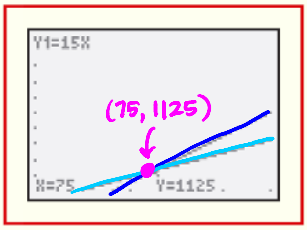
8.1 HW Pg. 264-265 #1-10

For Exercises 1–6, use the following information.

A talented teenage baker has agreed to supply a local cafe with pies for $15 each. She will need $525 in startup costs for her pie business. She also knows that it will cost her $8 to make each pie.

1. If x is the number of pies she sells to the cafe, write a function that models her total dollar revenue R. $R = 15x$
2. Write a function that models her total cost C. $C = 8x + 525$
3. Graph your revenue and total cost equations on the same set of axes. Find the coordinates of the intersection of the revenue and total cost functions.
4. Confirm your answer to Exercise 3 by using a table.
5. Explain the meaning of your answer to Exercises 3 and 4.
6. For what numbers of pies will the baker make a profit?



[50, 100] × [1000, 2000]

X	Y1	Y2
70	1050	1085
71	1065	1093
72	1080	1101
73	1095	1109
74	1110	1117
75	1125	1125
76	1140	1133

X=75

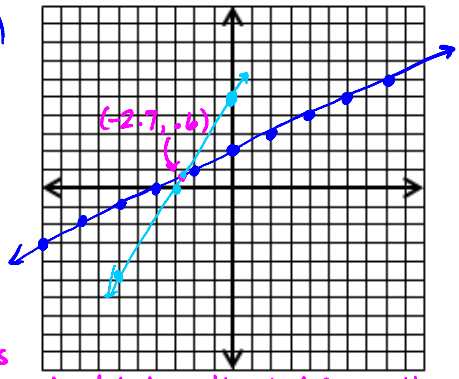
5) The teenager must sell 75 pies to make $1,125. It will also cost her a total of $1,125 to make 75 pies.

6) The teenage baker will make a profit if she sells more than 75 pies.

7. Consider this system of equations.
   - $x = 2y - 4$
   - $5x + 15 = 3y$

   a. Use grid paper to graph both equations on the same set of axes. Then estimate the solution to the system.
   b. Explain why this graphical method may not always be the best way to solve a system of two equations.

7)



- $2y = x + 4$, $y = \frac{1}{2}x + 2$
- $y = \frac{5}{3}x + 5$

(-2.7, .6) The accuracy of the solution depends on the accuracy of the graph. This solution had to be estimated since it was not integers.

8. Use the **[TABLE]** feature of a graphing calculator to solve this system of equations.
   - $y = 7x + 1$
   - $y = 2x + 9$

   (Hint: Use an increment of 0.1.)

8)

X	Y1	Y2
1	8	11
1.1	8.7	11.2
1.2	9.4	11.4
1.3	10.1	11.6
1.4	10.8	11.8
1.5	11.5	12
1.6	12.2	12.2

X=1.6

Solution: (1.6, 12.2)

9. Graph this system of equations.

- $2y - 3x = 4$
- $9x + 30 = 6y$

Explain how you know this system of equations has no solution.

$2y = 3x + 4$

$y = \frac{3}{2}x + 2$

$y = \frac{3}{2}x + 15$

Since these lines have the same slope and different y-int, they are ll to each other. As such, they will never cross, meaning there is no solution.

10. Graph this system of equations.

- $y = -0.6x + 2$
- $3x + 5y = 10$

Explain how you know this system of equations has an unlimited number of solutions.

$y = -\frac{3}{5}x + 2$

$5y = -3x + 10$

$y = -\frac{3}{5}x + 2$

This system of equations has an unlimited # of solutions, because they are the same line. This means they will cross at every single point!