Name:_____ Date:_____ Block:_____

8.1 Solving Linear Systems Graphically

Bell Work:

Ms. Lo went to her favourite Starbucks on Lonsdale and 3rd and spent $11.50. A brownie costs $3.50 and she bought two coffees. What was the cost of a coffee?

a) Define your variables. Write "let" statements (i.e. define your independent and dependent variables).

b) Write an algebraic equation to represent the problem (i.e. make sure both variables are in the equation).

c) Solve your equation.

Therefore, one coffee costs $_____.

Vocabulary:

Term	Definition
	A point at which two lines touch or cross
	Two or more linear equations involving common variables
	▪ a point of intersection on a graph ▪ an ordered pair that satisfies both equations ▪ a pair of values occurring in the tables of values of both equations

Example 1: Paden already has $10 in his savings account while his sister Lucca has $5. Both of them have just started new jobs. Each day they work Paden adds $10 to his savings, while Lucca adds $5.

a) Fill in the table of values:

Paden's Total Savings:

Day	Total Savings ($)
0	10
1	
2	
3	
4	
5	

Lucca's Total Savings:

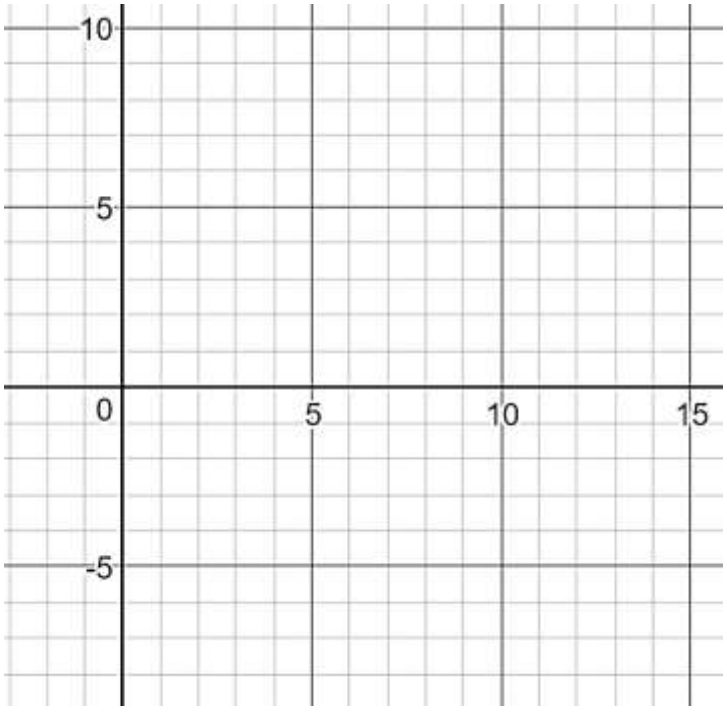
Day	Total Savings ($)
0	5
1	
2	
3	
4	
5	

b) Write an equation to represent Paden's total savings and Lucca's total savings. Write "let" statements (i.e. define your independent and dependent variables).

c) The siblings want to know if they will ever have the same amount of money. If so, what will the amount be and on what day?

- Therefore the **solution** (x, y) to this system of linear equations is: _____.
- That means that both equations if graphed will **intersect** at the point: _____.

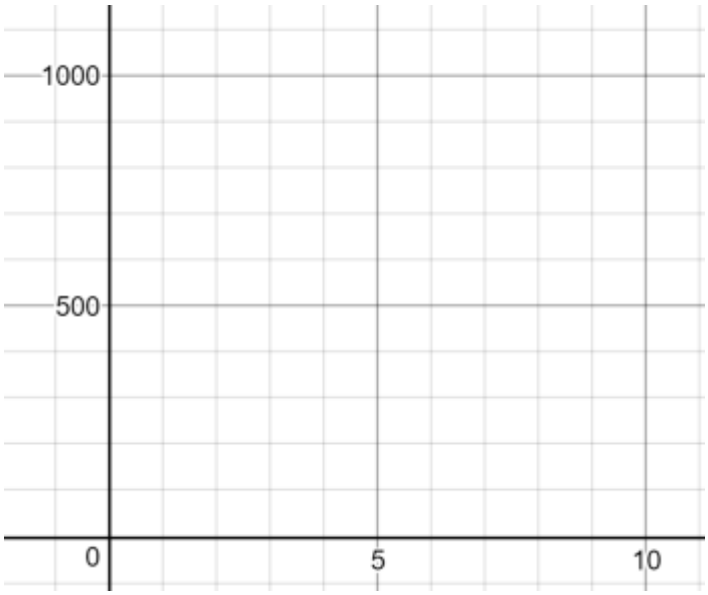
Example 2: Consider the system of linear equations $2x + y = 2$ and $x - y = 7$. Identify the point of intersection of the lines by graphing. Verify the solution using LS/RS.



Example 3: A red tram carries passengers down Grouse Mountain in Vancouver. It travels from an altitude of about 1100 m to an altitude of 300 m. The ride takes 5 min. There is also a blue tram that can go up the mountain in 8 min.

Sketch a graph to represent the system involving the trams' altitudes and times.

Tram		Red	Blue
Start	Time		
	Altitude		
End	Time		
	Altitude		
Graph			



Practice:

Example 4: Deborah already has $40 in her savings account while her brother Josh has $50. Both of them have just started new jobs. Each day they work Deborah adds $10 to her savings, while Josh adds $8.

a) Fill in the table of values:

Deborah's Total Savings:

Day	Total Savings ($)
0	40
1	
2	
3	
4	
5	

Josh's Total Savings:

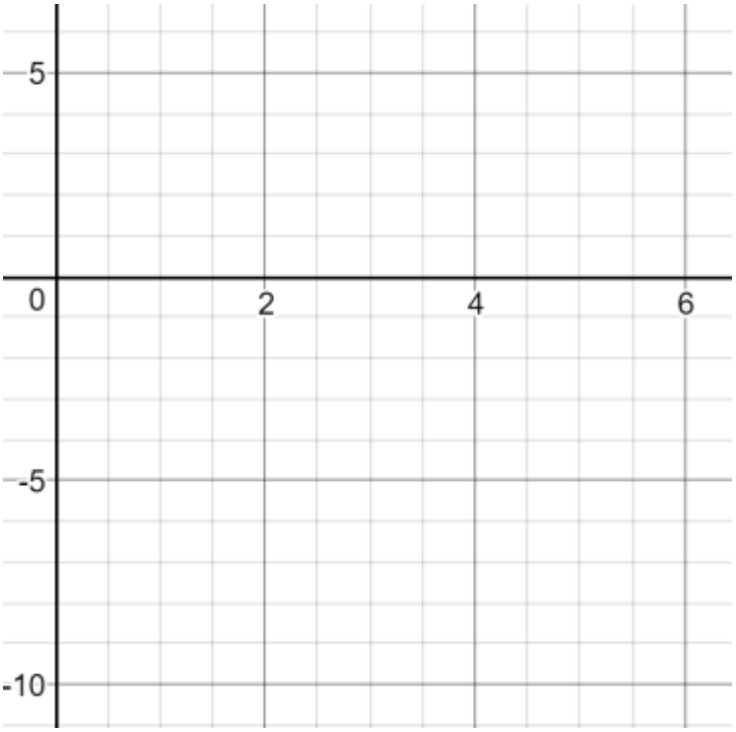
Day	Total Savings ($)
0	50
1	
2	
3	
4	
5	

b) Write an equation to represent Deborah's total savings and Josh's total savings. Write "let" statements (i.e. define your independent and dependent variables).

c) The siblings want to know if they will ever have the same amount of money. If so, what will the amount be and on what day?

- Therefore the **solution** (x, y) to this system of linear equations is: _____.
- That means that both equations if graphed will **intersect** at the point: _____.

Example 5: What is the solution to the systems of linear equations x – 3y = 9 and 2x + y = 4? Verify the solution.



Example 6: For each system of linear equations, verify whether the given point is a solution.

a. $3x - y = 2$
$x + 4y = 32$

(2, 5)

b. $2x + 3y = -12$
$4x - 3y = -6$

(-3, -2)

HW: P. 428 #8, 11, 15, 17, 18