

# Word Problems with Systems of Equations

## Bell Work:

1. Solve the equation. Show all work.  $5(x - 4) = 2x + 12$
2. What type of answer do you have if you have coinciding lines?
3. What are the 3 types of linear functions?
4. What is the range of the absolute value parent function?

# Word Problems with Systems of Equations

1. Mick rides a bus to work each day. He has 2 options to pay for riding the bus. Option A is to buy a monthly pass for \$30 and pay \$1 per ride. Option B is to pay \$2 per ride. What are the linear functions that represent this situation?

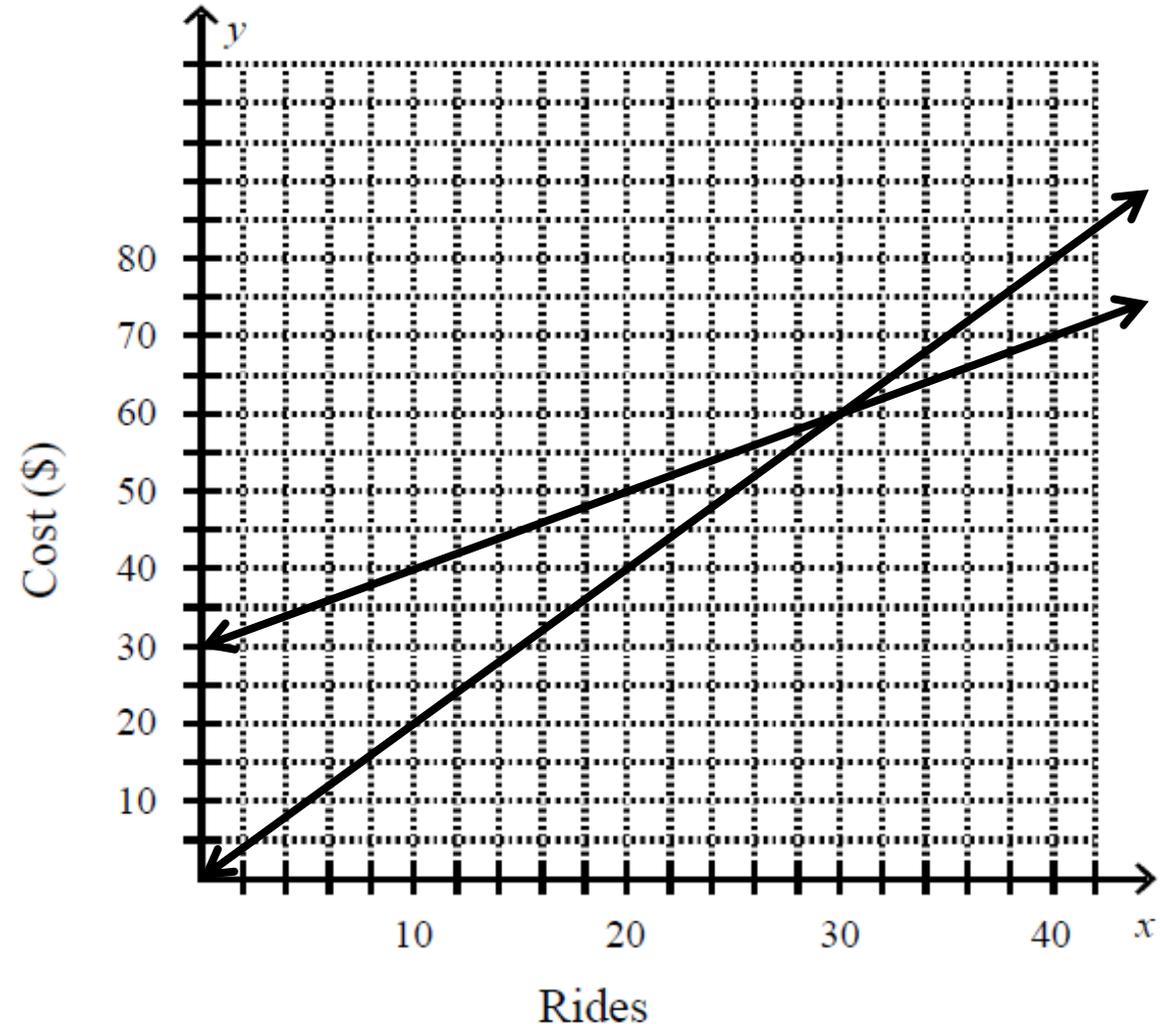
Option A:

$$y = 1x + 30$$

Option B:

$$y = 2x$$

Graph the lines.



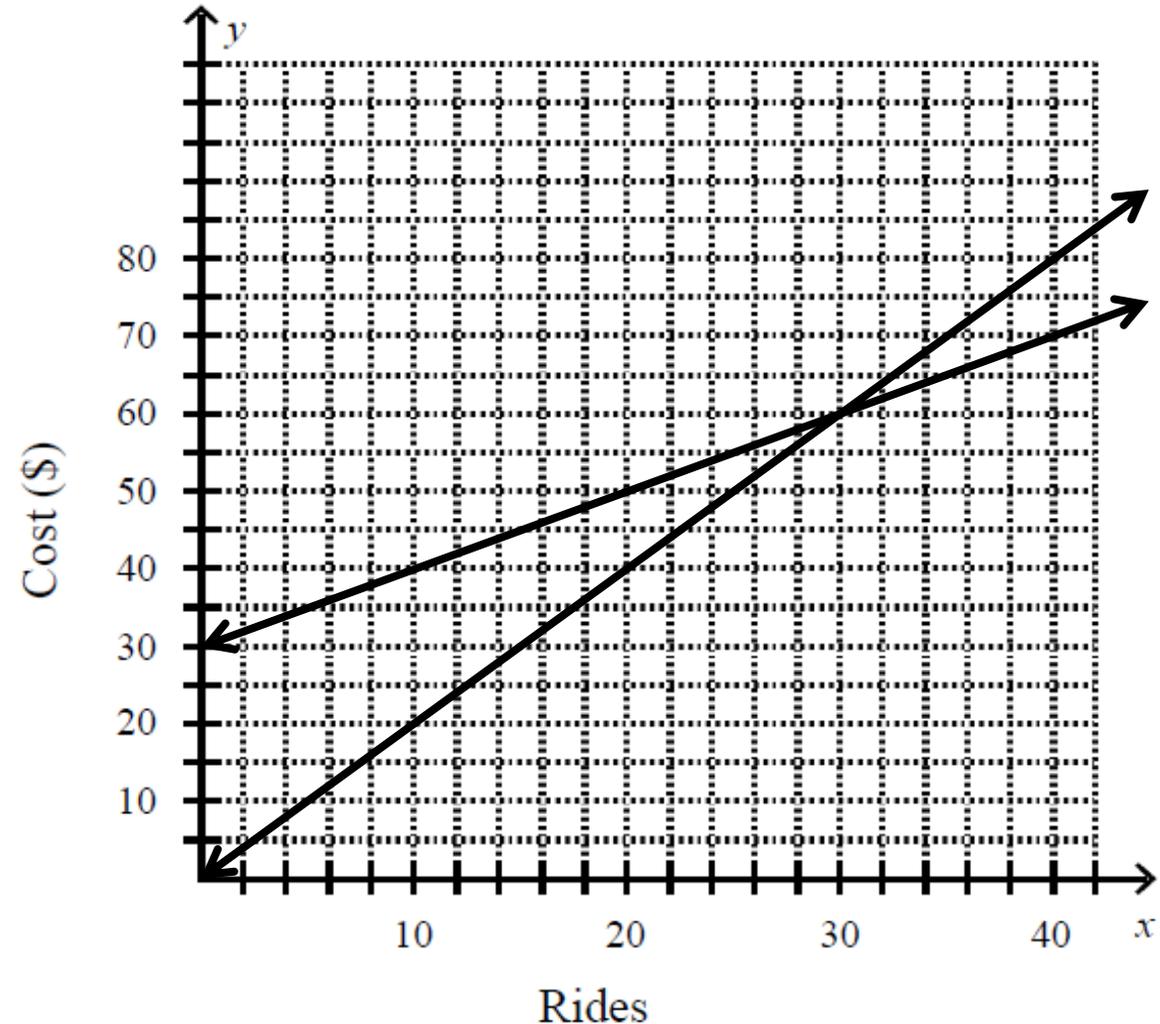
*Since we have a rate (slope), the functions will be in slope-intercept form.*

# Word Problems with Systems of Equations

1. Mick rides a bus to work each day. He has 2 options to pay for riding the bus. Option A is to buy a monthly pass for \$30 and pay \$1 per ride. Option B is to pay \$2 per ride. What are the linear functions that represent this situation?

After how many rides will the total cost of each option be the same?

At 30 rides, the cost would be the same.



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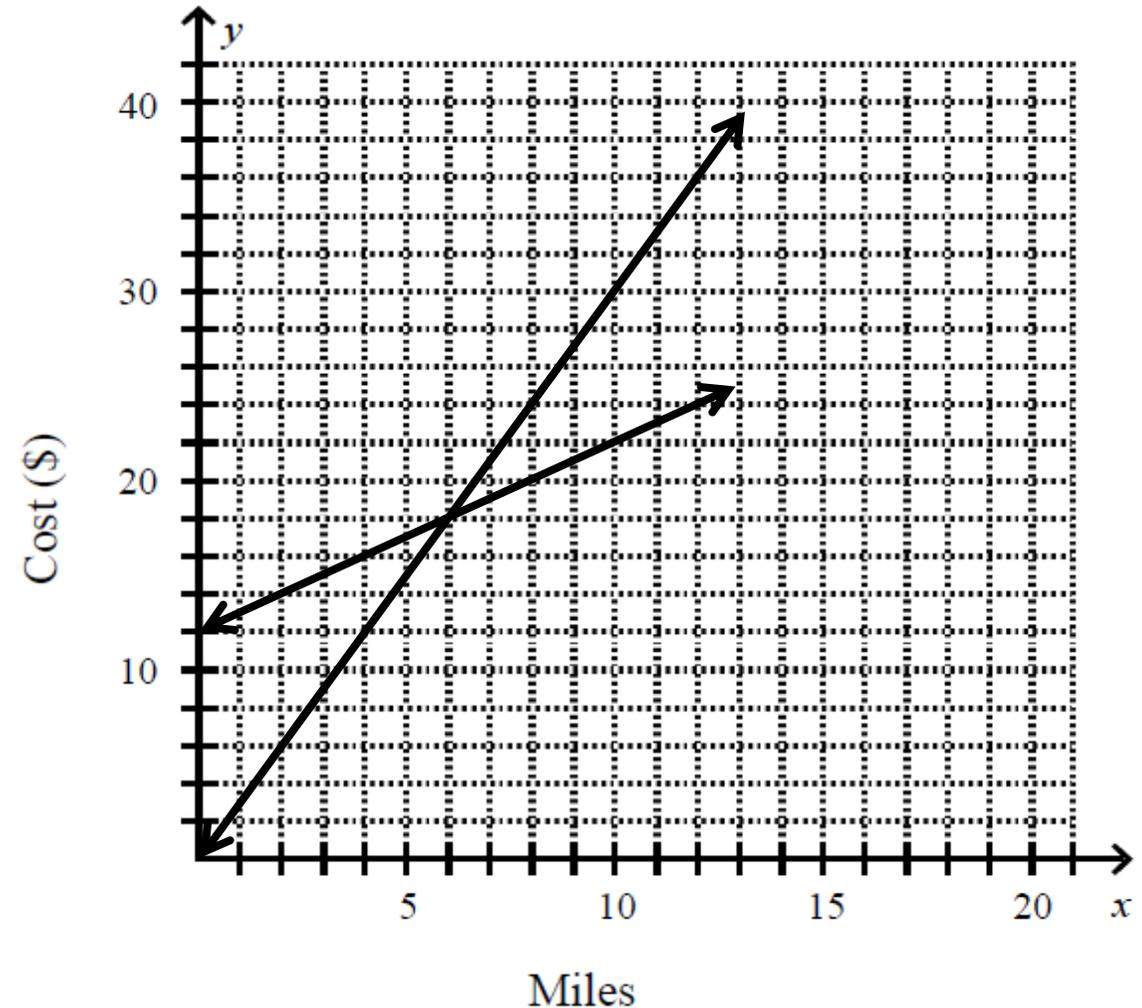
2. One taxi cab company charges a flat rate of \$12 and \$1 per mile. Another taxi cab company charges \$3 a mile, but no flat rate. What are the linear functions that represent this situation?

1<sup>st</sup> Taxi:

$$y = 1x + 12$$

2<sup>nd</sup> Taxi:

$$y = 3x$$



Graph the lines.

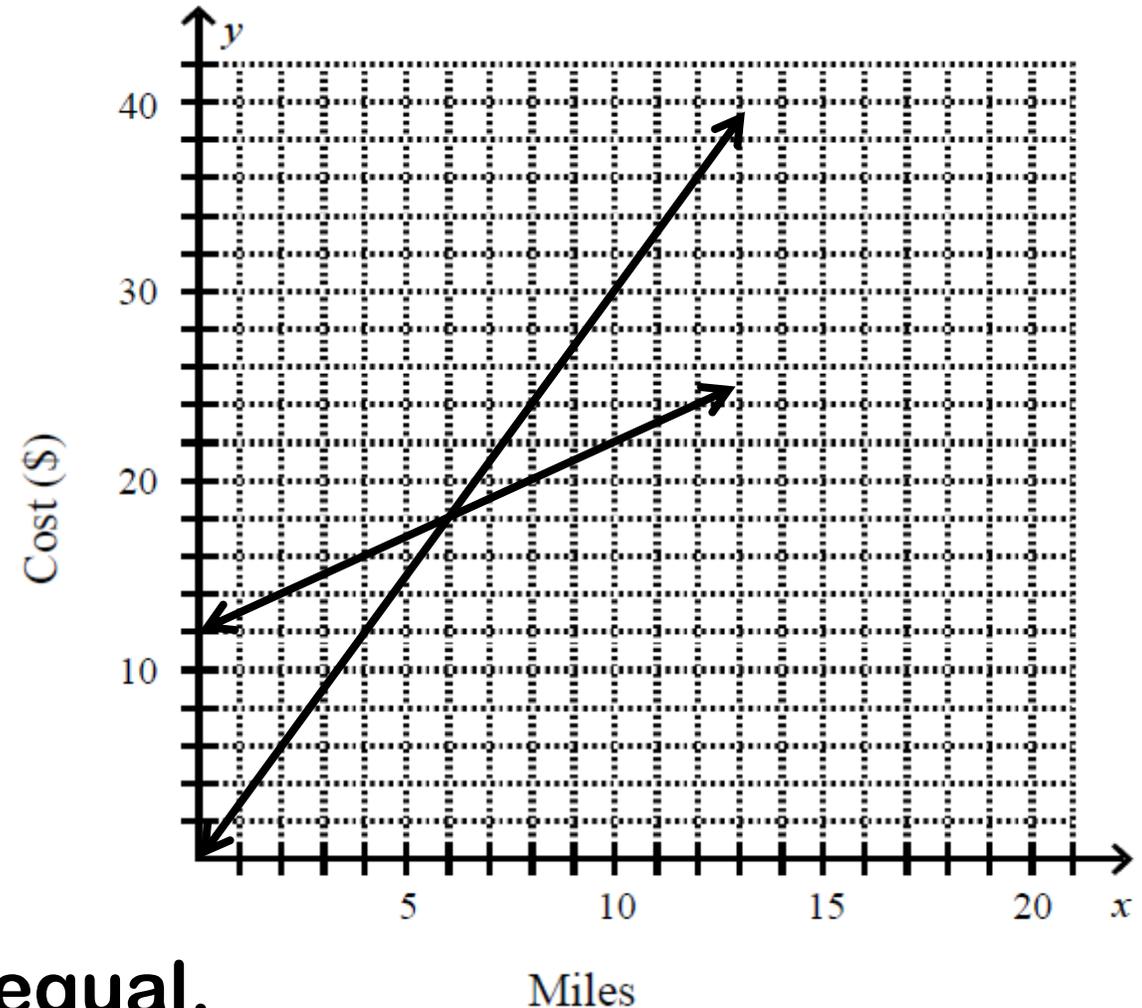
*Since we have a rate (slope), the functions will be in slope-intercept form.*

# Word Problems with Systems of Equations

2. One taxi cab company charges a flat rate of \$12 and \$1 per mile. Another taxi cab company charges \$3 a mile, but no flat rate. What are the linear functions that represent this situation?

How many miles will it take for the cab fares to be equal?

At 6 miles, the cab fares will be equal.



# Word Problems with Systems of Equations

3. Martha has \$200 to spend from your recent birthday money. She is shopping at a store that has all jeans for \$25 and all dresses for \$50. Martha wants to buy 6 items. What are the linear functions that represent this situation?  $(6, 0)$  &  $(0, 6)$

$x$ : jeans

$$x + y = 6$$

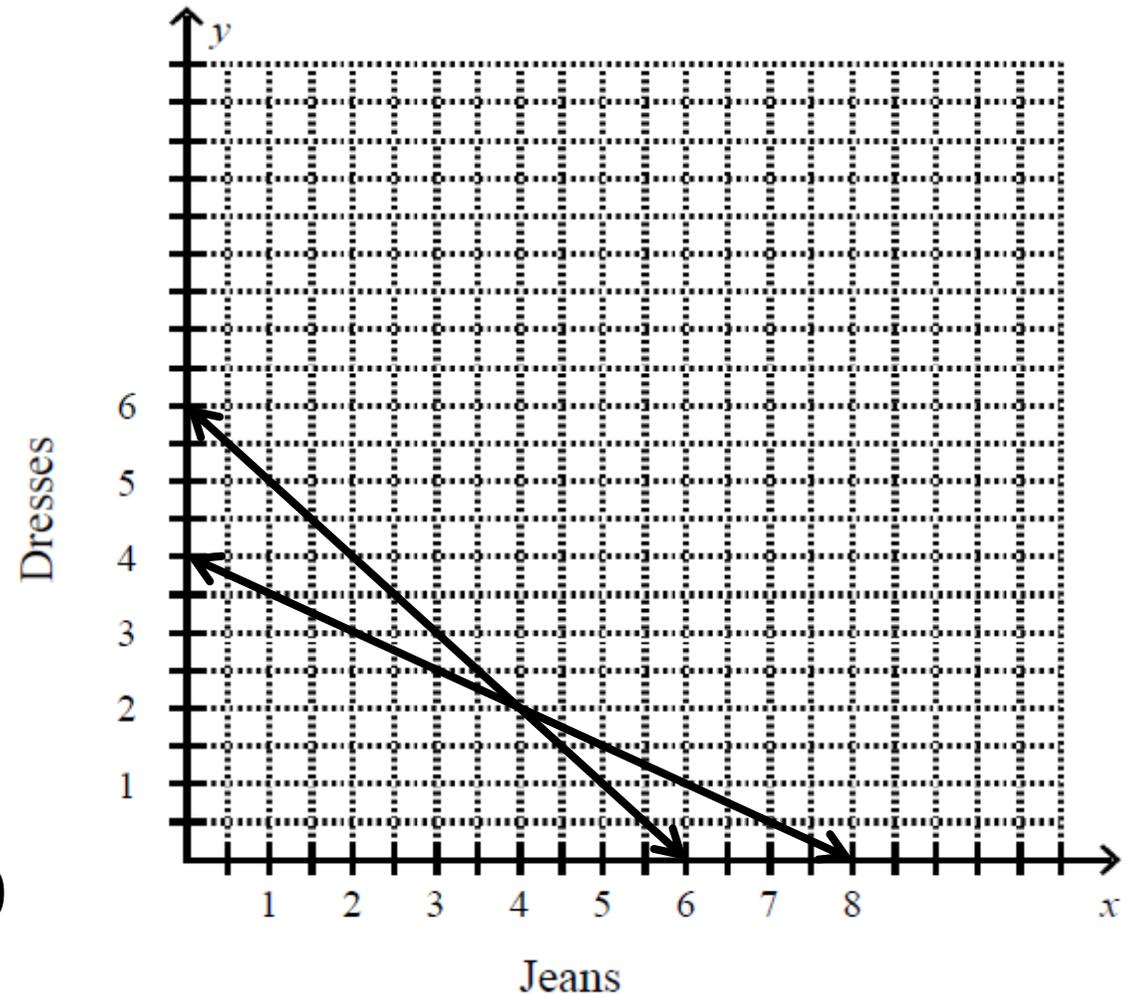
$y$ : dresses

$$25x + 50y = 200$$

$$(8, 0) \text{ \& \ } (0, 4)$$

Graph the lines.

*No rate, so the functions will be standard.*

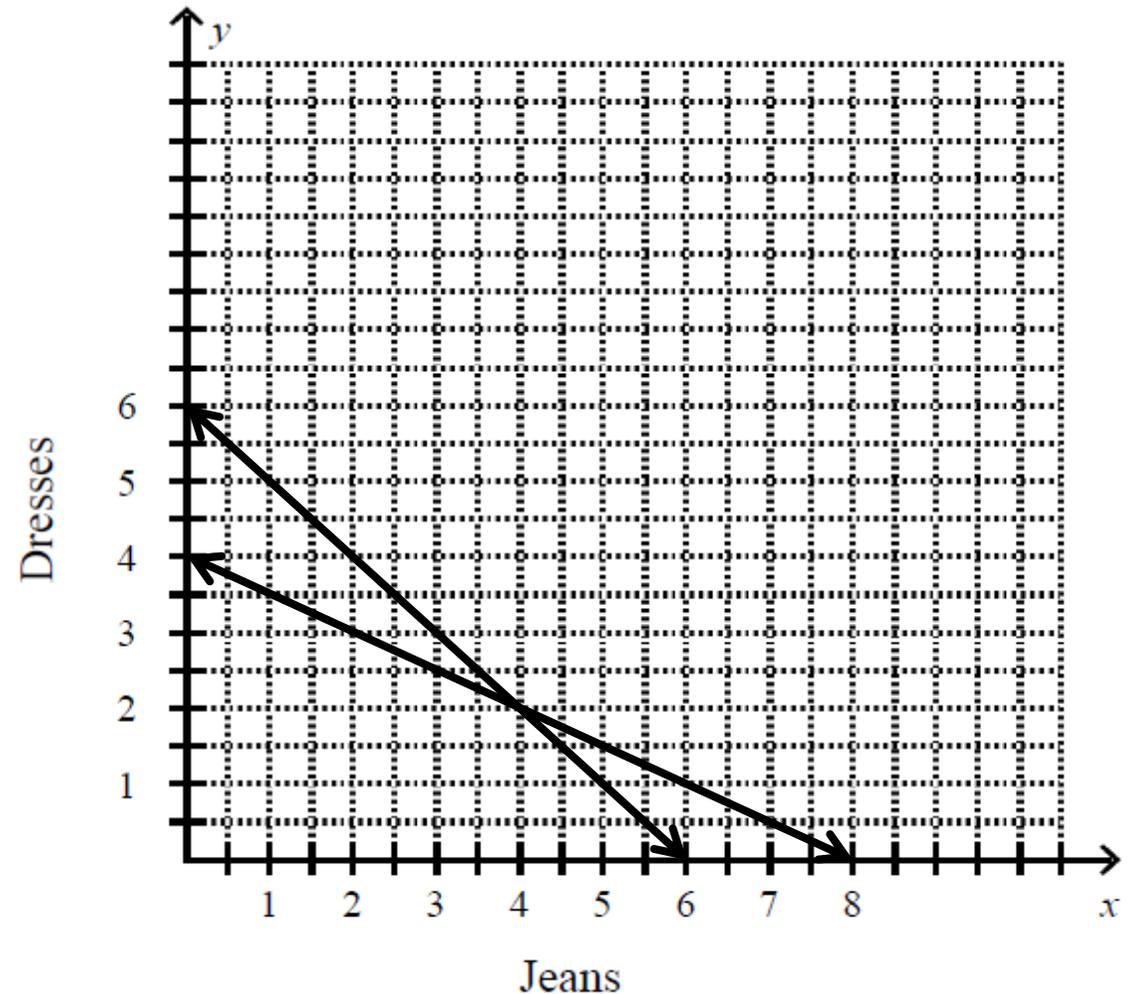


# Word Problems with Systems of Equations

3. Martha has \$200 to spend from your recent birthday money. She is shopping at a store that has all jeans for \$25 and all dresses for \$50. Martha wants to buy 6 items. What are the linear functions that represent this situation?

How many pairs of jeans and dresses should Martha buy?

She should buy 4 pairs of jeans and 2 dresses.



# Word Problems with Systems of Equations

4. Michaela has \$57 in \$1 and \$5 bills. She has 21 bills. What are the linear functions that represent this situation?

$x$ : \$1

$y$ : \$5

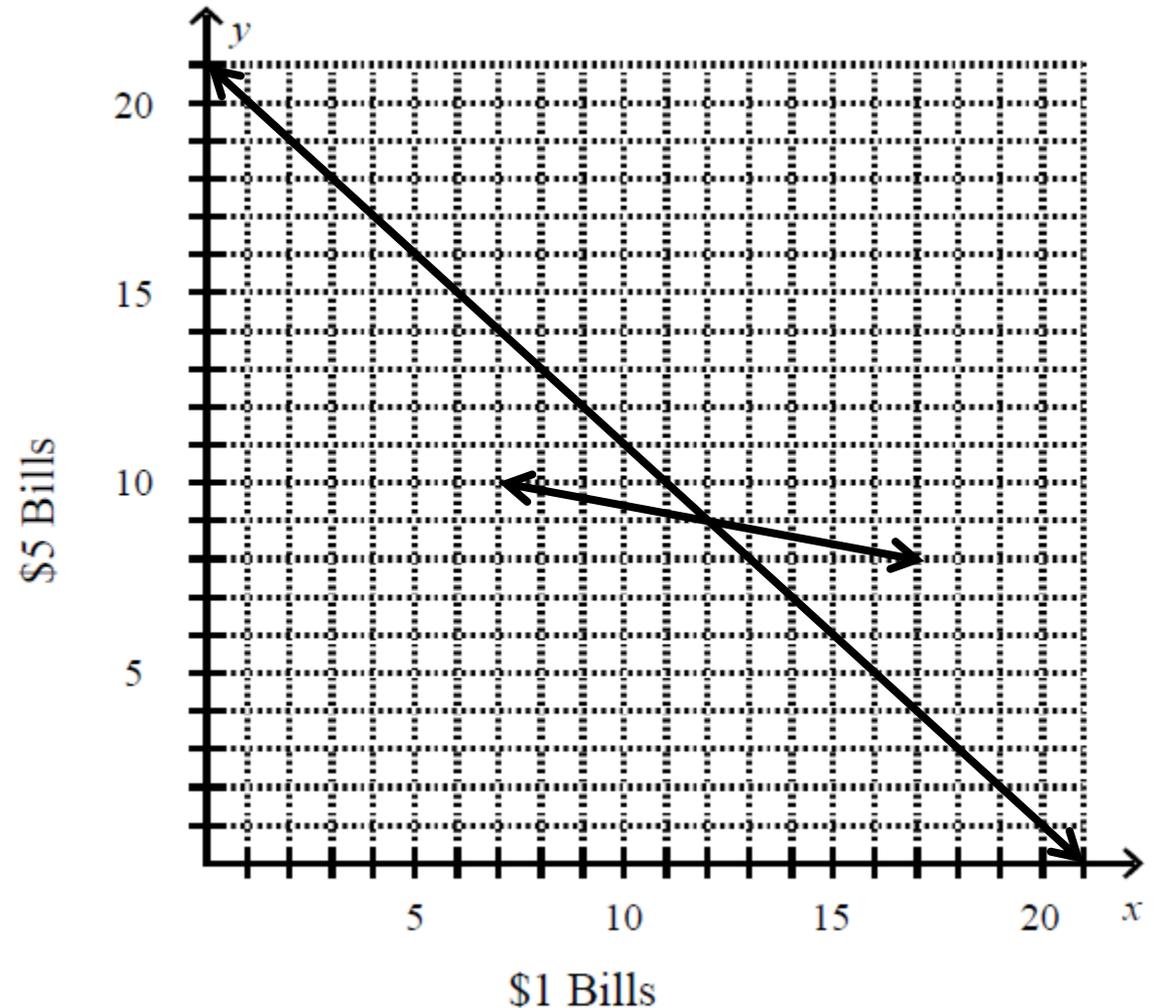
Graph the lines.

$(21, 0)$  &  $(0, 21)$

$$x + y = 21$$

$$x + 5y = 57$$

*Pick a point that works:  $(7, 10)$  and use the slope  $-1/5$ .*

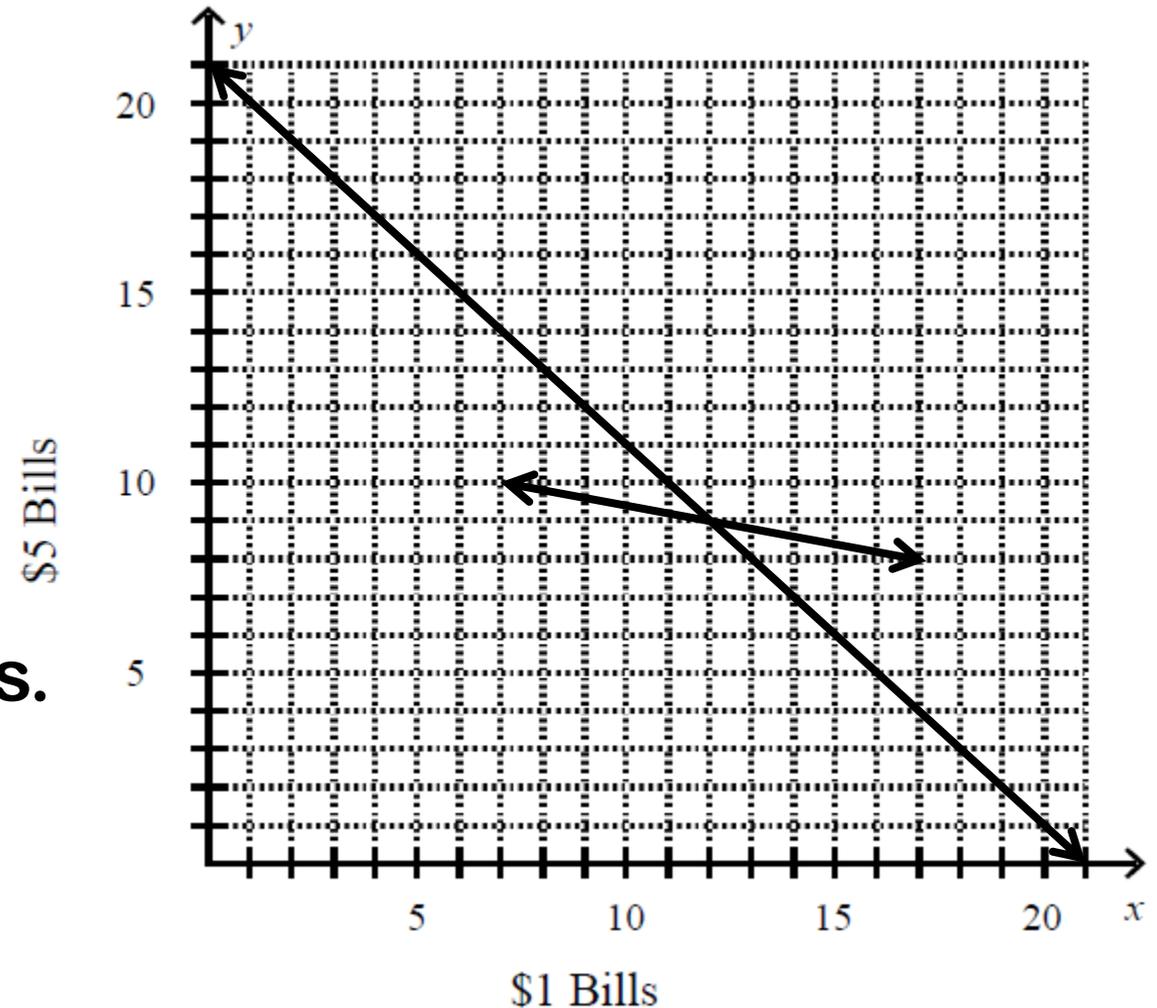


# Word Problems with Systems of Equations

4. Michaela has \$57 in \$1 and \$5 bills. She has 21 bills. What are the linear functions that represent this situation?

How many of each type of bill does Michaela have?

She has 12 \$1 bills and 9 \$5 bills.



# Word Problems with Systems of Equations

**Assignment:**

**FLEUNCY PRACTICE: Solving Word Problems by Graphing Systems of Equations Worksheet**