

Name: _____

Chapter 4 Unit Exam – Linear Relations

1. Drew can type 30 words per minute. He has to type a 2500-word essay.
 - a) The table below shows the number of words Drew has typed after a period of time.
 - b) Write an equation that relates the number of words typed, y , to the number of minutes, x , that Drew has typed. Show your answer in the table below.
 - c) Drew types for 40 min. How many words has Drew typed? Show your answer in the table below.
 - d) When Drew has finished typing his 2500 word assignment, for how long has he been typing? Show your answer in the table below.

Number of minutes, x	Equation: $y =$	Number of words typed, y
1	$y =$	30
2	$y =$	
3	$y =$	
4	$y =$	
5	$y =$	
40	$y =$	
	$=$	2500

2. The pattern in the table below continues.
 - a) Write an equation that relates v to t . Show your answer in the table below.
 - b) What is the value of the 20th term? Show your answer in the table below.
 - c) What term has a value of 203? Show your answer in the table below.

Term Number, t	Equation: $v =$	Term Value, v
1	$v =$	7
2	$v =$	11
3	$v =$	15
4	$v =$	19
20	$v =$	
	$=$	203

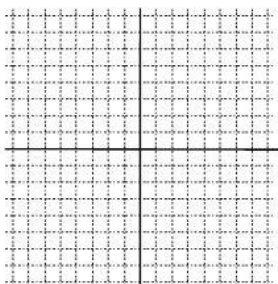
3. Complete the table of values for each linear relation.

x	$y = -3x + 2$	y
-2	$y =$	
0	$y =$	
2	$y =$	
4	$y =$	
6	$y =$	

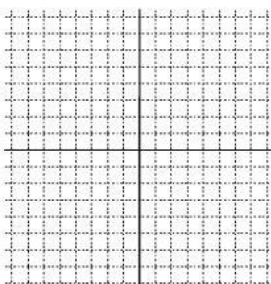
x	$x + 2y = 10$	y
2	$y =$	
4	$y =$	
6	$y =$	
8	$y =$	
10	$y =$	

4. Graph each linear relation by dragging and dropping the correct red lines below onto the correct spot on the graph.

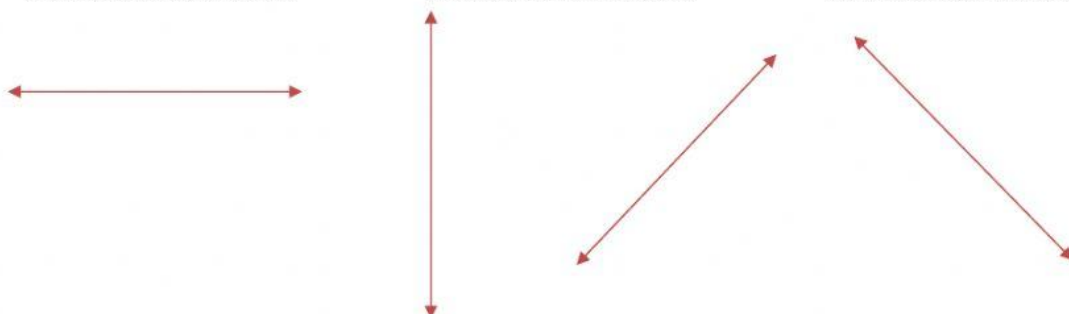
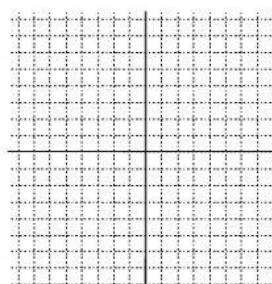
a) $y - 3 = 0$ $y =$



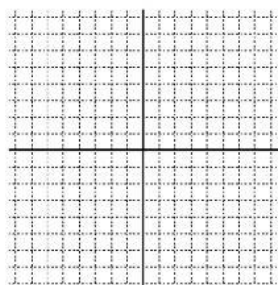
b) $x + 3 = 0$ $x =$



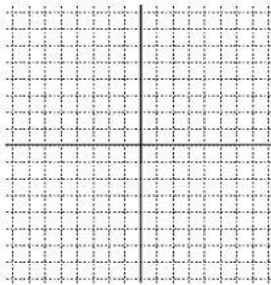
c) $y = x - 6$



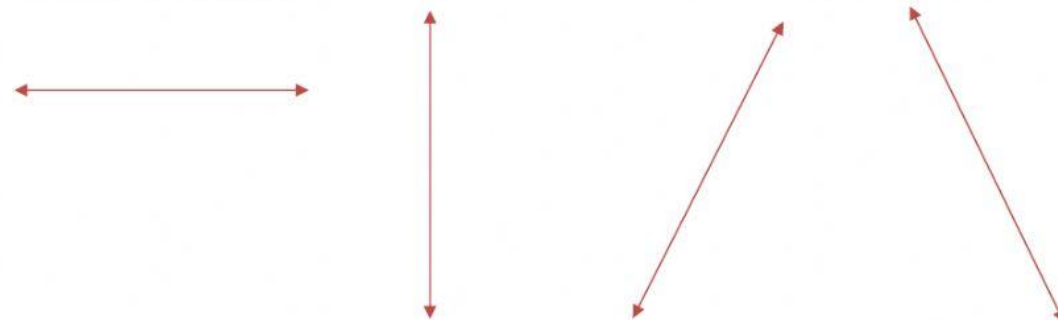
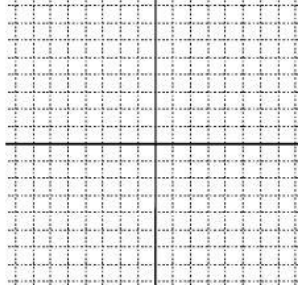
c) $2y = 6$ $y =$



d) $3x = 12$ $x =$



e) $2x + y = 4$ $y =$



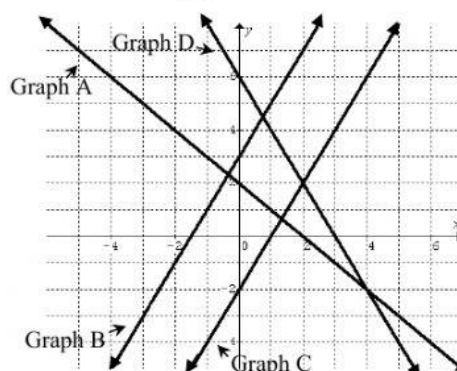
5. Match each equation with a graph on the grid below. Justify your answers.

a) $2x + y = 6$
 $y =$

b) $2x - y = 2$
 $y =$

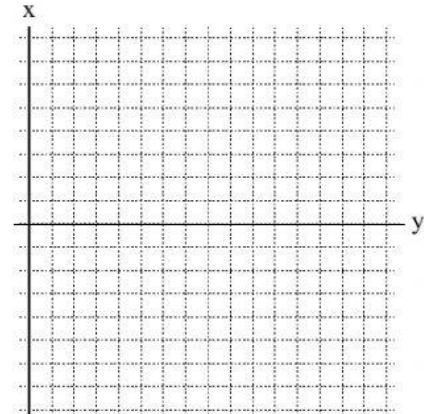
c) $y = 2x + 3$

d) $y = -x + 2$

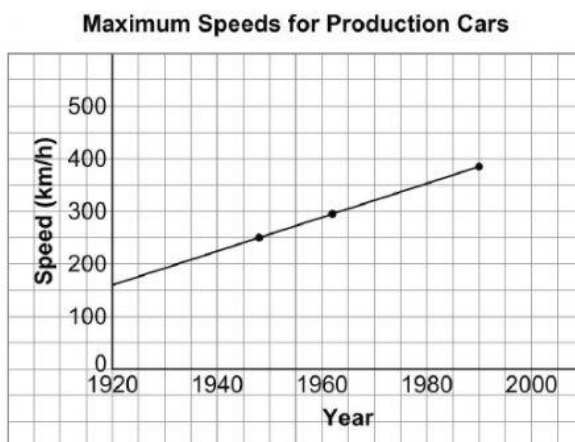


6. The sum of two numbers is 7. Let x and y represent the two numbers.
- Complete a table for values of x from 5 to 10. Graph the data. Drag and drop the red dots to the proper place on the graph.
 - Write an equation that relates x and y . Show your answer in the table below.
 - Use the graph to interpolate the value of x when $y = -5$.
 $x =$
 - Use the graph to extrapolate the value of y when $x = 18$.
 $y =$

x	Equation: $y =$	y	Ordered Pairs
5	$y =$	2	$(\quad , \quad)$
6	$y =$	1	$(\quad , \quad)$
7	$y =$	0	$(\quad , \quad)$
8	$y =$	-1	$(\quad , \quad)$
9	$y =$	-2	$(\quad , \quad)$
10	$y =$	-3	$(\quad , \quad)$



7. The graph shows how the maximum speed for production cars has changed over time.



- Estimate the maximum speed of a production car in 1960.
Max speed =
- Did you use interpolation or extrapolation?
- Estimate the maximum speed of a production car in 2010.
Max speed =
- Predict when the maximum speed will reach 500 km/h.
Year =