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: =**	**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: =**	**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 =	

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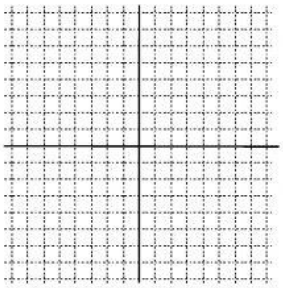
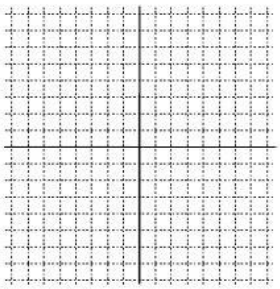
4. Graph each linear relation by dragging and dropping the correct red lines below onto the correct spot on the graph.

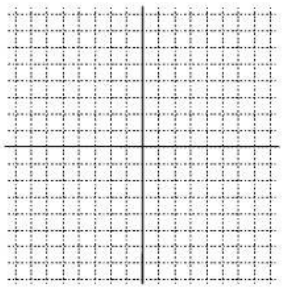
a) $y - 3 = 0$ $\quad y =$



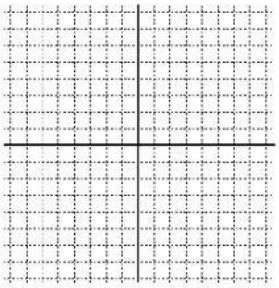
b) $x + 3 = 0$ $\quad x =$



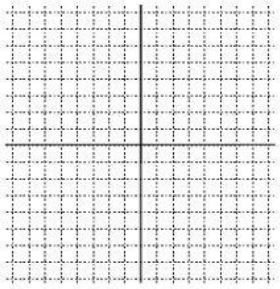
c) $y = x - 6$



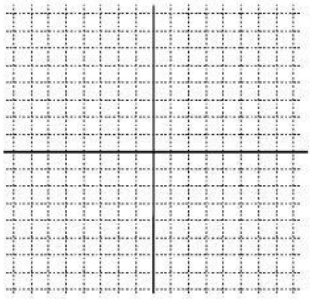
c) $2y = 6$ $\quad y =$



d) $3x = 12$ $\quad x =$



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



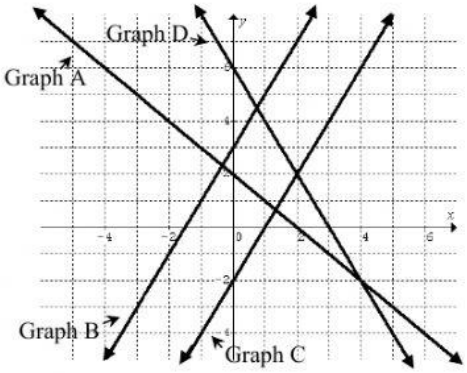
5. Match each equation with a graph on the grid below. Justify your answers.

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

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

c) $y = 2x + 3$

d) $y = -x + 2$



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6. The sum of two numbers is 7. Let x and y represent the two numbers.

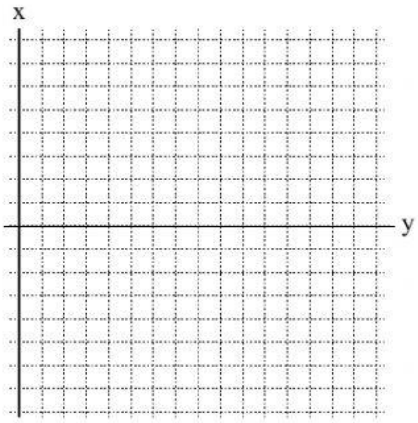
a) Complete a table for values of x from 5 to 10. Graph the data. Drag and drop the red dots to the proper place on the graph.

b) Write an equation that relates x and y. Show your answer in the table below.

c) Use the graph to interpolate the value of x when $y = -5$.
x =

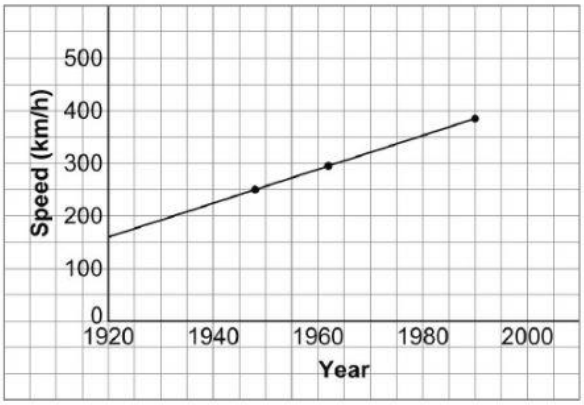
e) Use the graph to extrapolate the value of y when $x = 18$.
y =

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



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

Maximum Speeds for Production Cars



a) Estimate the maximum speed of a production car in 1960.
Max speed =

b) Did you use interpolation or extrapolation?

c) Estimate the maximum speed of a production car in 2010.
Max speed =

d) Predict when the maximum speed will reach 500 km/h.
Year =

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