

Name: _____

Date: _____ Block: _____

Linear Relations Worksheet

Mrs. van der Vossen MATH 8

1. Solve the following:

a. In the expression $\frac{3}{1}x + 5$ (*MEANS* $\frac{3}{1}x + 3$)
what is the variable _____, the coefficient _____, the constant _____?

b. In the equation $y = 4x - 2$ (*MEANS* $y = \frac{4}{1}x + 3$)
what is the slope _____ and the y-intercept _____?

c. In the equation $y = -x + 3$ (*MEANS* $y = \frac{-1}{1}x + 3$)
what is the slope _____ and the y-intercept _____?

2. How can you tell if a graph is linear or non-linear if:

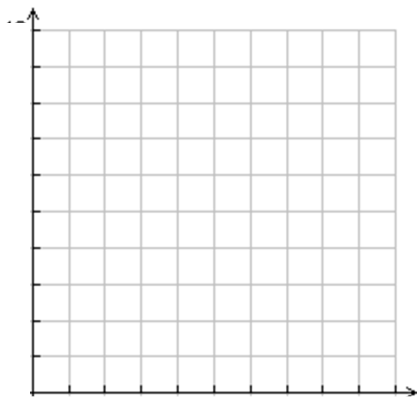
a. You are shown the graph only?

b. You are shown the table of values only?

3. Graph the following tables of values on the graphs below.
Label the x and y axis.

a.

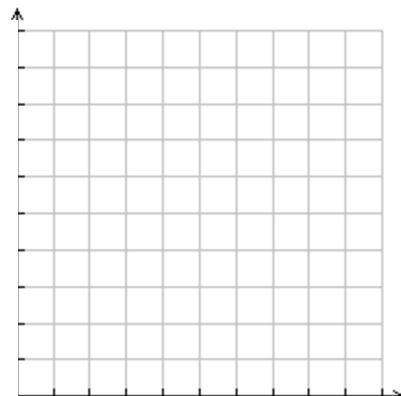
x	y
1	5
2	10
3	15
4	20



b.

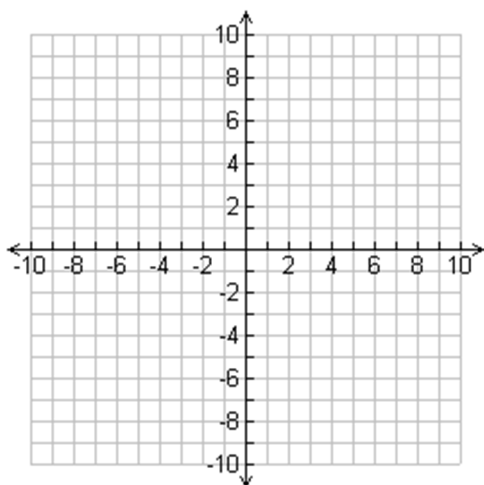
x	2	4	6	8
y	5	7	9	11

CAREFUL – your ticks on the axis must be equal amounts



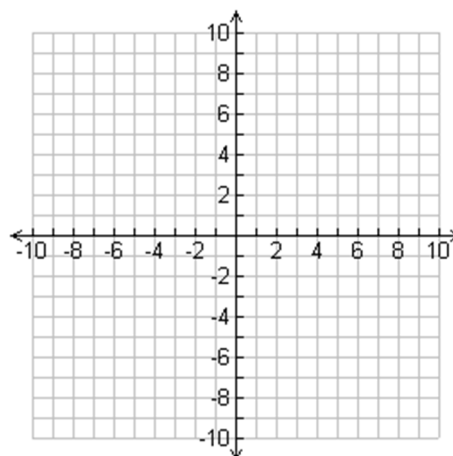
c.

x	y
-1	-2
-2	0
-3	2
-4	4



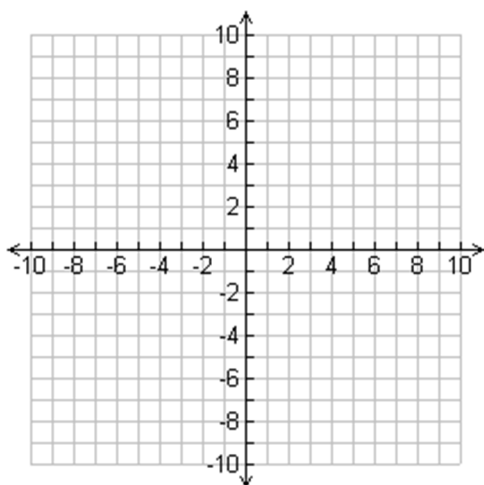
d.

x	1	3	5	6
y	-3	-4	-5	-6

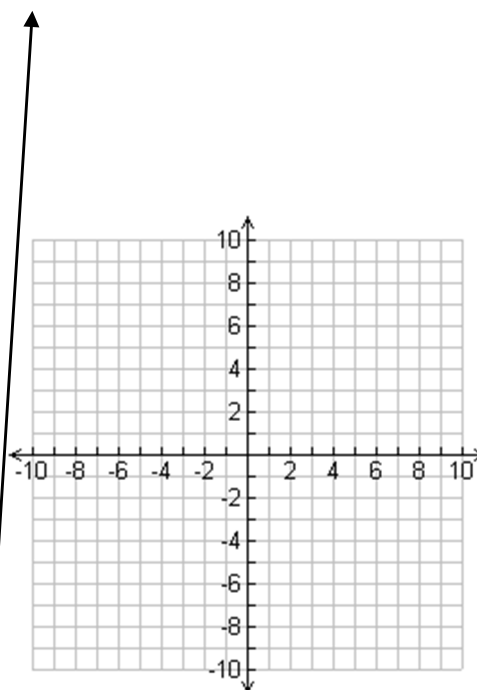


4. Graph the following using the given equations. Create a table of values to solve. (hint – you need to “make-up” 5 values for x)

a. $y = \frac{2}{1}x + 3$



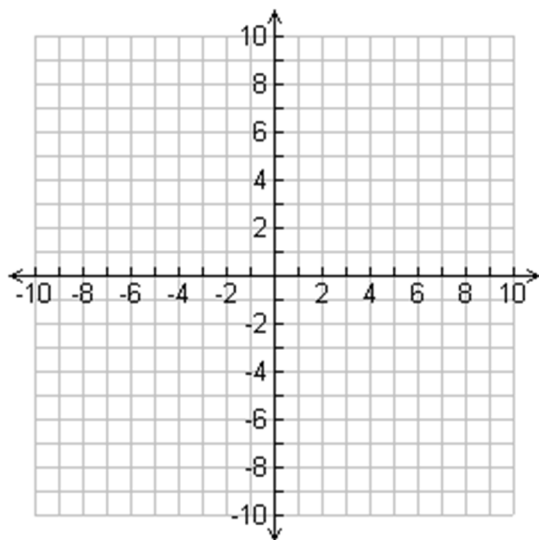
b. $y = \frac{4}{1}x - 2$



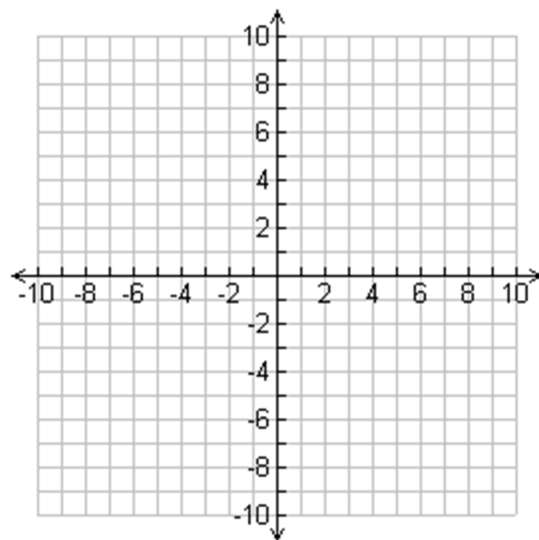
Did you know that $y = 4x - 2$ means the same as this?

Did you know that $y = -x + 2$ means the same as this?

c. $y = -\frac{1}{1}x + 2$



d. $y = \frac{1}{2}x + 4$



5. Describe the pattern in the following tables. Are they linear? Why or why not?

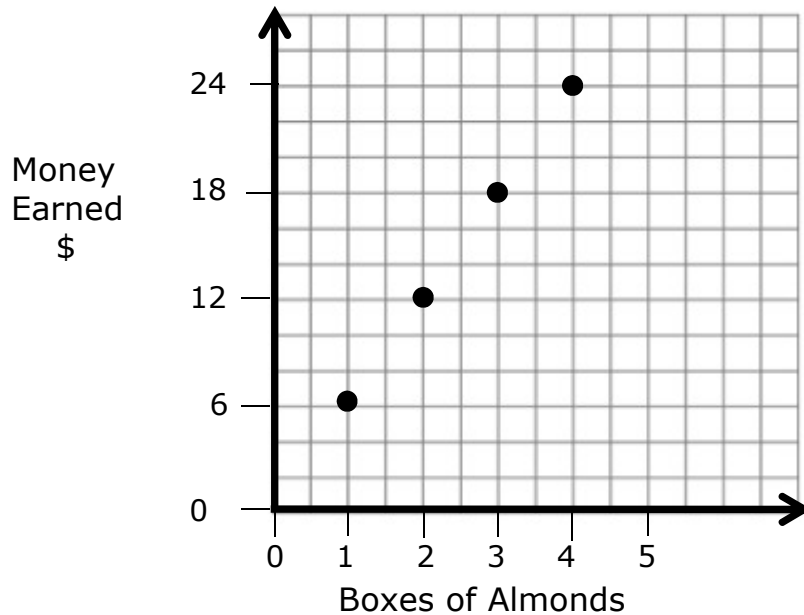
a.

x	y
-1	-2
-2	0
-3	2
-4	4
-5	6
-6	8

b.

x	y
0	0
1	1
2	4
3	9
4	16
5	25

6. Use the graph to answer the following questions.

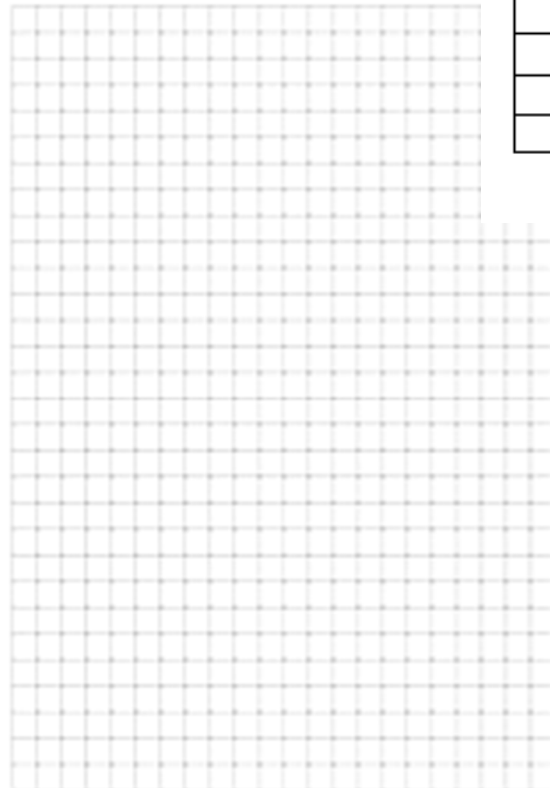


- a. What pattern is shown on the graph. Be Specific!!
- b. Make a table of values for the ordered pairs on the graph above.

- c. Write an equation relating the amount of money you earn to the number of boxes of almonds you sell.
- d. What is the value of your profit if you sell 16 boxes of almonds?
- e. How many boxes of almonds did you sell if you made a profit of \$120?

7. You can rent a scooter for \$10 per hour plus \$15 flat fee for insurance. This can be put into the formula $C = \frac{10}{1}h + 15$ where C is the cost in dollars to rent the scooter and H is the number of hours you get to use the scooter for.

a. Make a table of values and start with $H = 0$.



- b. Graph it. Label axis.
- c. Is the relation linear? Why or why not?
- d. Are there other points possible between the points on the graph? Why or why not?
- e. If you rent the scooter for *8hours*, how much will it cost?

10. Tina began riding her all-terrain vehicle (ATV). After 5 s, her speed was 10 km/h. After 10 s, her speed was 25 km/h. After 15 s, her speed was 30 km/h. After 20 s, her speed was 35 km/h.

a) Make a table of values that represents Tina's ATV ride.

Time (s)	Speed (km/h)

b) Graph the table of values.



c) Is there a linear relation between time and speed during Tina's ATV ride? Explain.

d) What must happen for there to be a linear relation between time and speed?