

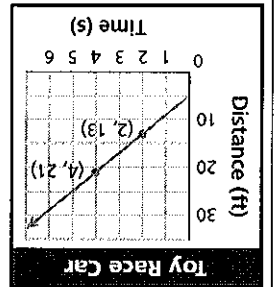
Unit 3: Linear Functions Part 1

Name: _____

Date: _____

Class: _____

GRADE: _____



- 1 The graph below shows a relationship. a) Create a verbal description of the relationship.

b) Is the relationship a linear function? How do you know?
 YES THE GRAPH IS A STRAIGHT LINE

- c) How many solutions are there for the relationship?
 How do you know?
 ALL INFINITE AMOUNT BECAUSE OF ARROW

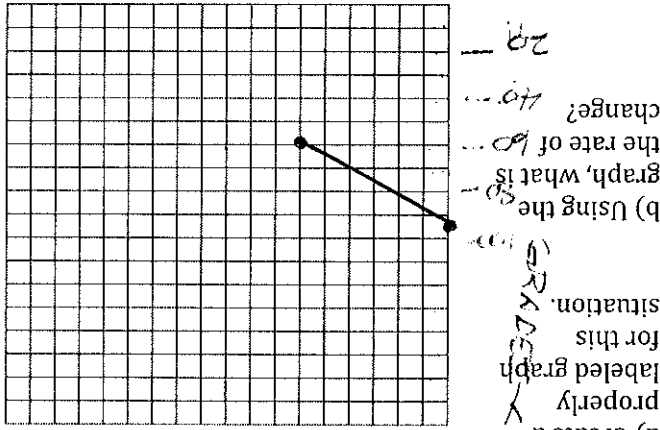
- 3 A hot air balloon rose from a height of 100 meters to 400 meters in 3 minutes. What was the balloon's rate of change?

RATE OF CHANGE = $m = \frac{y_2 - y_1}{x_2 - x_1}$

$$= \frac{400 - 100}{3 - 0} = \frac{300}{3} = 100$$

X Y
 TIME HEIGHT
 3 400
 0 100

- 4 A student's grade fell from a 96 to a 60 over 3 weeks because they slacked off and stopped doing their work.

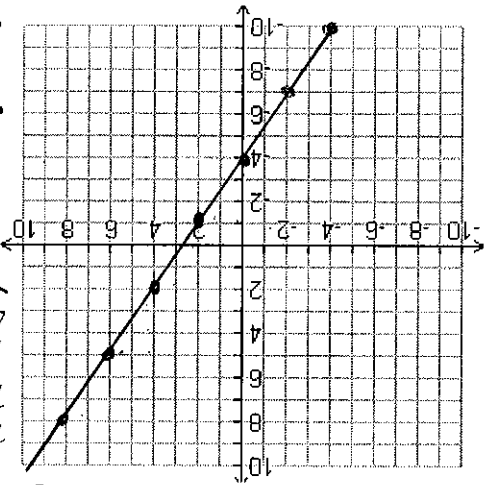


WEEKS X

RATE OF CHANGE = $m = \frac{y_2 - y_1}{x_2 - x_1}$

$$= \frac{60 - 96}{3 - 0} = \frac{-36}{3} = -12$$

- a) how do you know by looking at the equation that the relationship is linear?
 IT IS IN THE FORM $y = mx + b$
 ALSO X KKS
 $y = \frac{3}{2}x - 4$
- b) how do you know by looking at the graph that the relationship is linear?
 THE GRAPH IS A STRAIGHT LINE



- 2 Graph the solutions to the equation $y = \frac{3}{2}x - 4$.

⑥ What kind of number is 0.12345678909898765432101234...?

IRRATIONAL

How do you know?

IRRATIONAL NUMBERS

NEVER END OR

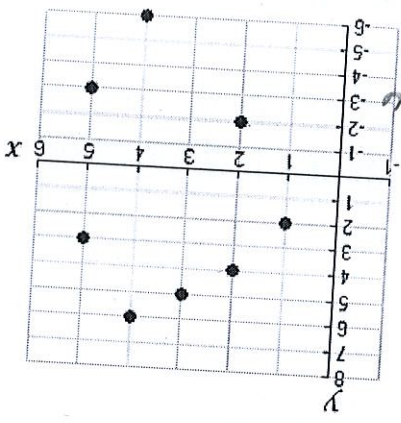
TERMINATE

6 CAN NEVER EQUAL 2
 \therefore NO SOLUTION

$$\begin{array}{r}
 3(x+2) = 2+3x \\
 3x+6 = 2+3x \\
 -3x \quad -3x \\
 \hline
 6 = 2
 \end{array}$$

⑤ Solve:

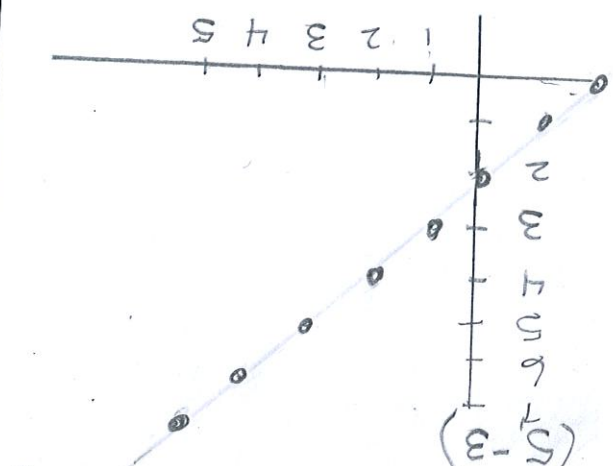
⑦ The graph below shows a relation.



a) Which point(s) need to be changed in order to make this relation a linear function?

TO BE A LINEAR FUNCTION, EARN X VALUE CAN ONLY BE USED ONCE, AND NEEDS TO BE IN A STRAIGHT LINE

b) Draw your changes from part (a) on the graph.



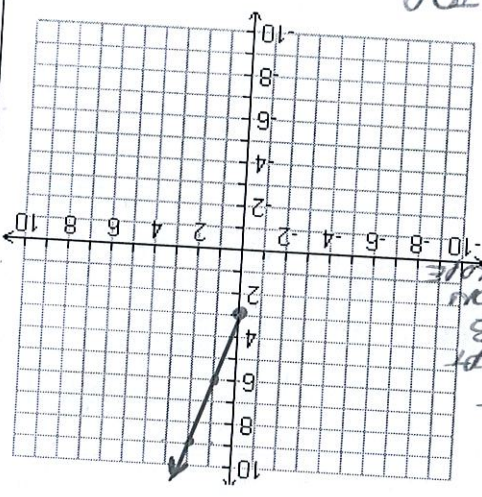
⑧ Over the summer you work walking dogs around your neighborhood. You decide to charge a flat fee for the service, and then an additional rate per dog that you walk. If you walk 5 dogs, you earn \$18.00. If you walk 2 dogs, you earn \$9.00.

number of dogs	money earned
5	18
4	15
3	12
2	9
1	6
0	3

a) complete the chart. FIND THE RATE OF CHANGE 18-9 / 5-2

$$y = 3x + 3$$

b) create an equation for this situation.



c) graph the situation. START AT Y INTERCEPT WHICH IS B IN EQUATION THEN USE SLOPE

d) where is it appropriate to include arrows for this graph?

ONLY AT THE TOP