

Unit 7 Linear Relations

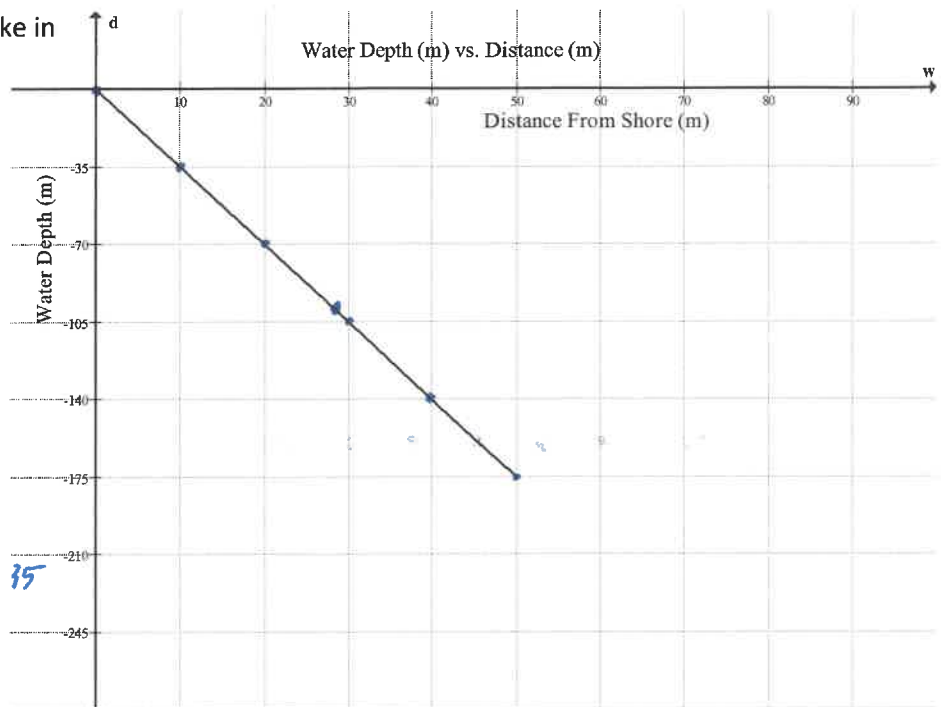
7.3 Graphing Linear Relationships

Ex. Great Slave Lake is the deepest lake in North America. It has a maximum depth of 614 m. Jill collected data about the depth of the lake from shore to a distance of 50 m from shore, which she then graphed.

- a) Determine a linear equation for this graph.

* make a table of values for the data to help identify a pattern

Distance, d (m)	Depth, w (m)
0	0
10	-35
20	-70
30	-105
40	-140
50	-175



$$\frac{-35}{+10} = -3.5$$

$$w = -3.5d$$

- b) Is it reasonable to interpolate or extrapolate values from this graph?

Yes we can interpolate, data is continuous within her measurements
possibly extrapolate assuming the depth change continues to

- c) Approximate the depth at 28 m away from shore. Verify your solution. Our max dept 614m

↳ interpolate from graph: 28m from shore ~ -100m

use $w = -3.5d$

$$w = -3.5(28)$$

$$w = -98 \text{ m deep}$$

- d) How far away from shore would you expect to reach the maximum depth of 614 m?

$$w = -3.5d$$

$$\frac{-614}{-3.5} = \frac{-3.5d}{-3.5}$$

$$d = 175.4 \text{ m from shore}$$

- e) At what rate is the depth of the water decreasing?

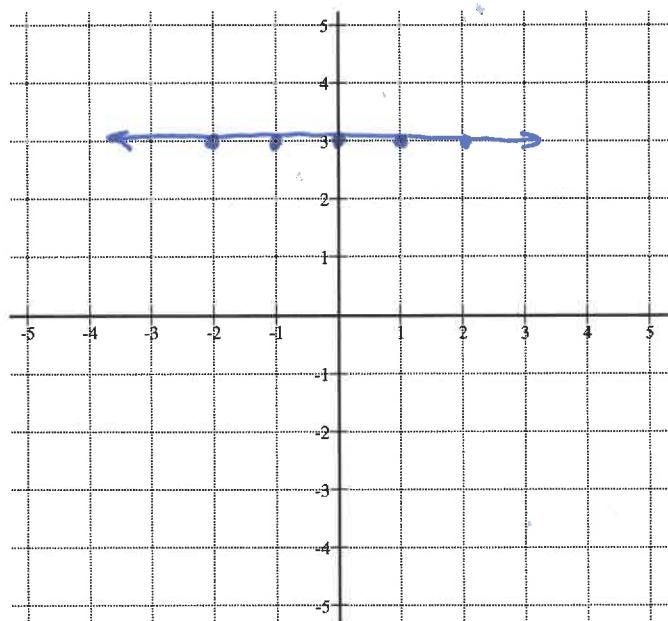
↑ depth decreases by 35 m for every 10 m away from shore

★ rate = slope

Ex. Graph each table of values and determine the equation that represents each graph.

Table 1

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



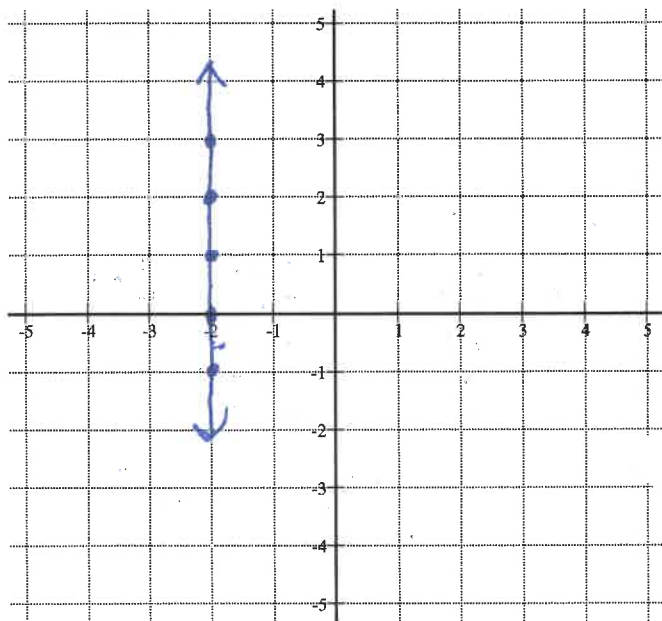
$y = \underline{\hspace{1cm}} x + \underline{\hspace{1cm}}$
Horizontal line

$$y = \underline{\hspace{1cm}}$$

$$y = \boxed{3}$$

Table 2

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



Vertical line
 $x = \underline{\hspace{1cm}}$

$$\boxed{x = -2}$$