

Unit 7 Linear Relations

7.3 Graphing Linear Relationships

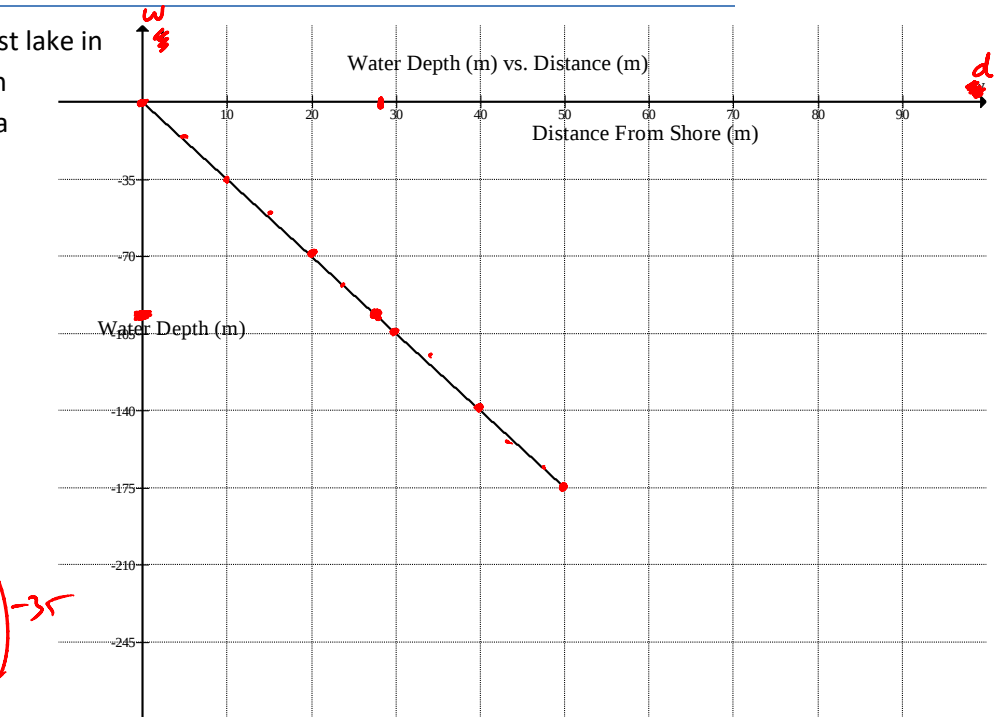
Ex. Great Slave Lake is the deepest lake in North America. It has a maximum depth of 614 m. Jill collected data about the depth of the lake from shore to a distance of 50 m from shore, which she then graphed.

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

+10



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

$$w = -3.5d$$

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, up to a max of 614 m deep.

c) Approximate the depth at 28 m away from shore. Verify your solution.

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

$$\text{use } w = -3.5d: \quad w = -3.5(28) = -98 \text{ m deep}$$

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

$$w = -3.5d \\ \frac{-614}{-3.5} = \frac{-3.5d}{-3.5} \quad d = 175.4 \text{ m from shore}$$

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

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

* rate = slope

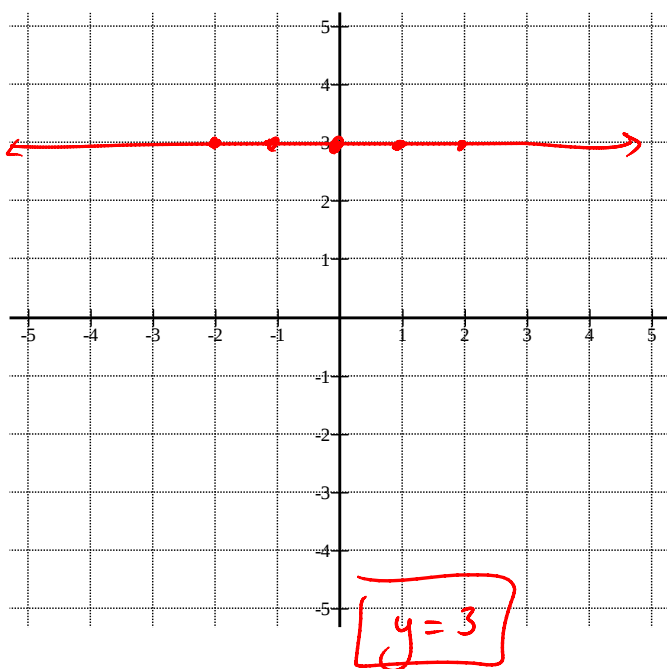
Ex. Graph each table of values and determine the equation that represents each graph.

Table 1

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

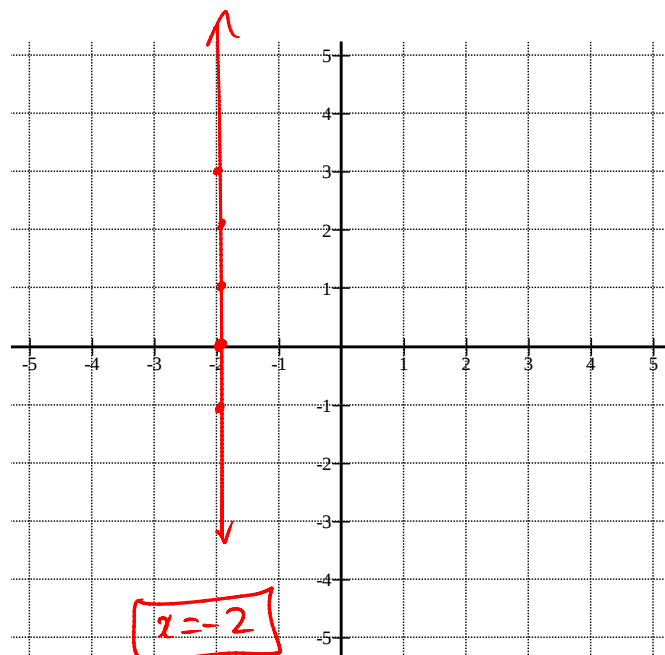
Table 2

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



Horizontal lines

$y = \underline{\hspace{2cm}}$



Vertical lines

$x = \underline{\hspace{2cm}}$