EXPLORATION

2-3 Graphing Linear Functions

Jorge is filling the stock tank at his ranch. He starts when the water in the tank is 5 feet deep. The water rises 1.5 inches per minute.

1. Write an equation that gives the depth of the water in inches y after x minutes.

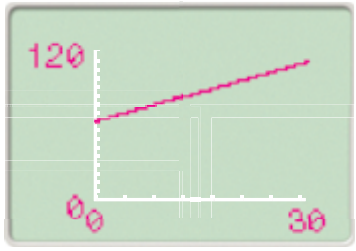
2. Complete the table.

Time (min)	0	6	12	18	24	30
Water Depth (in.)	60					

3. Find the successive differences in the water depths, as indicated here. What do you notice?

Time (min)	0	6	12	18	24	30
Water Depth (in.)	60					

4. Use your graphing calculator to graph the equation. What is the shape of the graph?



THINK AND DISCUSS

5. **Describe** several different methods you could use to find the depth of the water after 36 minutes.

6. **Explain** how you can find out how long it will take to fill the tank if it can hold 10 feet of water.

EXPLORATION

2-3 Graphing Linear Functions

Jorge is filling the stock tank at his ranch. He starts when the water in the tank is 5 feet deep. The water rises 1.5 inches per minute.

1. Write an equation that gives the depth of the water in inches y after x minutes. $y = 60 + 1.5x$

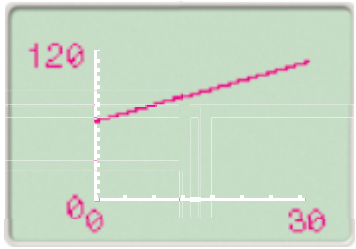
2. Complete the table.

Time (min)	0	6	12	18	24	30
Water Depth (in.)	60	69	78	87	96	105

3. Find the successive differences in the water depths, as indicated here. What do you notice? They are all 9 in.

Time (min)	0	6	12	18	24	30
Water Depth (in.)	60	69	78	87	96	105
		9	9	9	9	9

4. Use your graphing calculator to graph the equation. What is the shape of the graph? The graph is a line.



THINK AND DISCUSS

5. **Describe** several different methods you could use to find the depth of the water after 36 minutes.

6. **Explain** how you can find out how long it will take to fill the tank if it can hold 10 feet of water.

5. Possible answers: Extend the table; substitute $x = 36$ in the equation; use the graph.

6. 10 feet is 120 inches, so solve $120 = 60 + 1.5x$. ($x = 40$; 40 min)