

Why is a polynomial of degree 1, meaning  $x$  is the highest exponent, called "linear"?

All of the 2-step equations we have seen have a VARIABLE TERM (with the  $x$ ) and a CONSTANT TERM (#). 2-Step equations are simplified LINEAR ( $y = mx + b$ ) equations. We can represent them as tables and graphs.

- 1) Lisa has \$10. She earns \$2 for every chore she completes at her grandma's house.
  - a. Write an algebraic expression for the amount of money she can earn in total. Let  $x =$  chores.
  - b. Make a table for the amount of money she can earn in total. Let  $x =$  chores and  $y =$  amount of money.
  - c. Draw a graph for the amount of money she can earn in total based off of the number of chores she completes.

a.

$$2x + 10$$

$$2(0) + 10 = 10$$

$$2(1) + 10 = 12$$

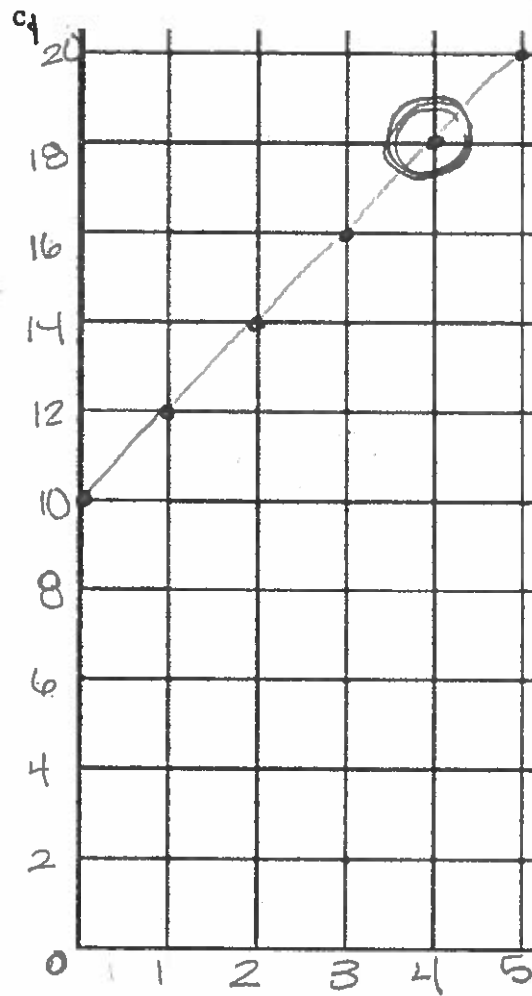
$$2(3) + 10 = 16$$

$$2(4) + 10 = 18$$

$$2(5) + 10 = 20$$

b.

X: Chores	Y: \$
	+2
0	10
1	12 +2
2	14 +2
3	16 +2
<u>4</u>	<u>18</u> +2
5	20 +2



d. How many chores must Lisa complete if she wants to earn \$18? Find your answer by SOLVING an equation. Confirm your answer by circling the answer on the table and on the graph.

4 chores

$$2x + 10 = 18$$

$$\begin{array}{r} 2x + 10 = 18 \\ -10 \quad -10 \\ \hline 2x = 8 \end{array}$$

$$\frac{2x}{2} = \frac{8}{2} \quad \text{X} = 4$$

e. How many chores must Lisa complete if she wants to earn \$40? Find your answer by SOLVING an equation. What would you see if you could find your answer on the table? What would you see on the graph?

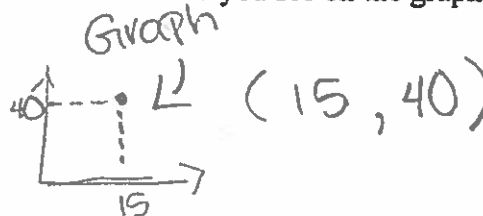
$$2x + 10 = 40$$

$$\begin{array}{r} 2x + 10 = 40 \\ -10 \quad -10 \\ \hline 2x = 30 \end{array}$$

$$\frac{2x}{2} = \frac{30}{2}$$

$$\text{X} = 15$$

X	Y
15	40



\*\*KEY IDEA: A 2-step equation is really just a Snapshot of a linear scenario.