Modeling Functions--Graphing Initial Value and Rate of Change

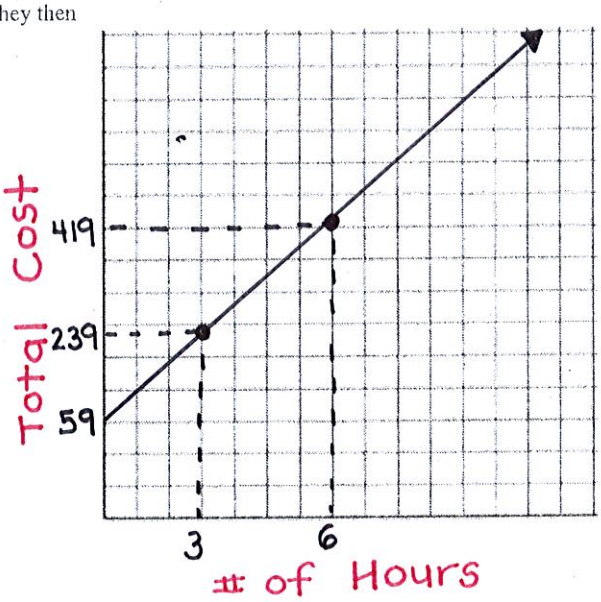
Big Ideas: Graphs can contain numbers too large or small to graph in detail--Initial Value (y-intercept) can still be found using significant points, tables and/or the knowledge that linear equations can take the slope-intercept form of: $y = mx + b$

Example:

Ted needs a plumber. He called one up and found that they charge a service fee just to come out to his house. One the plumber is there, they then charge a set amount an hour.

To get an idea of pricing, Ted is told that:
3 hours will cost a total of $239
6 hours will cost a total of $419

a. Sketch a graph of this situation.



b. What is the rate of change? $60 per hour

x	y
3	239
6	419

$\frac{\Delta y}{\Delta x} = \frac{180}{3} = 60$

c. Find the service fee. $59

$60 \times 3 = 180$

$239 - 180 = 59$

d. Write an equation to represent this situation:

$y = 60x + 59$