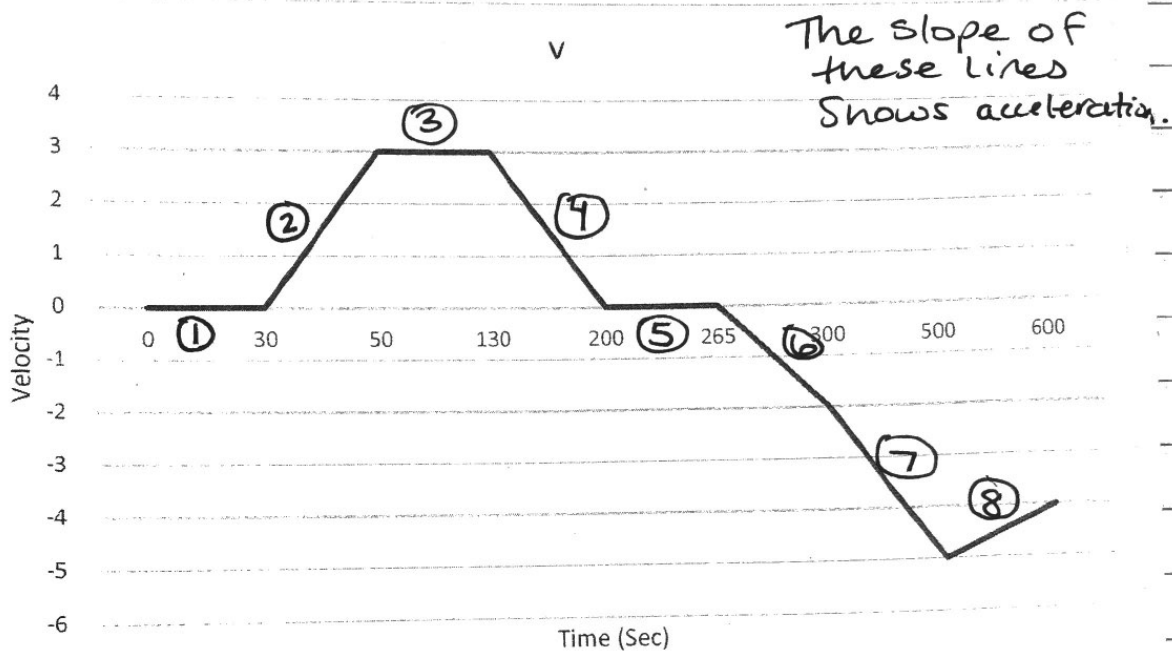


Acceleration & Graphs

9/4/19

Velocity-time graph



Acceleration = a change in velocity over time.

$$a = \frac{\Delta v}{\Delta t}$$

On the graph, the object is accelerating at lines 2, 4, 6, 7, & 8.

The object is not accelerating at lines 1, 3, & 5.

To find the acceleration at each line, we find the slope.

$$\frac{y_2 - y_1}{x_2 - x_1}$$

At line 1 \rightarrow No slope

$$\text{At line 2} \rightarrow \frac{3 - 0}{50 - 30} = \frac{3}{20} = 0.15 \text{ m/s}^2$$

At line 3 \rightarrow No slope

$$\text{At line 4} \rightarrow \frac{0 - 3}{200 - 130} = \frac{-3}{70} = -0.04 \text{ m/s}^2$$

At line 5 \rightarrow No slope

$$\text{At line 6} \rightarrow \frac{-2 - 0}{300 - 265} = \frac{-2}{35} = -0.06 \text{ m/s}^2$$

$$\text{At line 7} \rightarrow \frac{-5 - -2}{500 - 300} = \frac{-3}{200} = -0.015 \text{ m/s}^2$$

$$\text{At line 8} \rightarrow \frac{-4 - -5}{600 - 500} = \frac{1}{100} = 0.01 \text{ m/s}^2$$