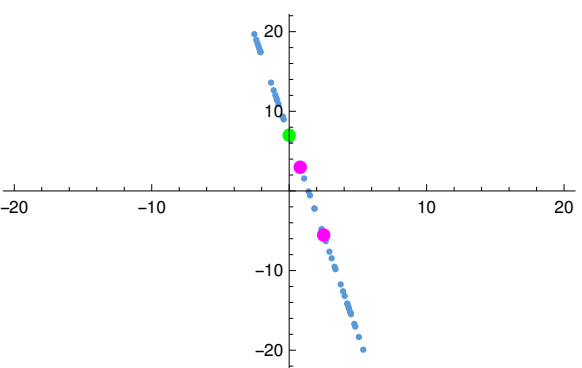


Lines Experimentation: Constant $\frac{\Delta y}{\Delta x}$

Visualize $y = (-5)x + 7$

Visualize with points scattered in Cartesian plane with coordinates $(x, (-5)x + 7)$.

Choose 2 arbitrary points (x_1, y_1) and (x_2, y_2) along the line and compute $\frac{\Delta y}{\Delta x} = \frac{y_2 - y_1}{x_2 - x_1}$

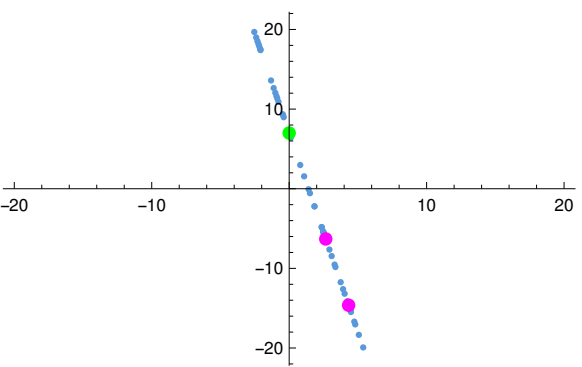


$$y = \overset{m}{-5}x + \overset{b}{7}$$

$$y\text{-Intercept} = y(0) = b = 7$$

$$\bullet \text{ } -5 = \frac{\Delta y}{\Delta x} = \frac{(-5.53812) - (-2.98147)}{2.50762 - 0.803707} = \frac{-8.51959}{1.70392}$$

Choose another 2 arbitrary points:

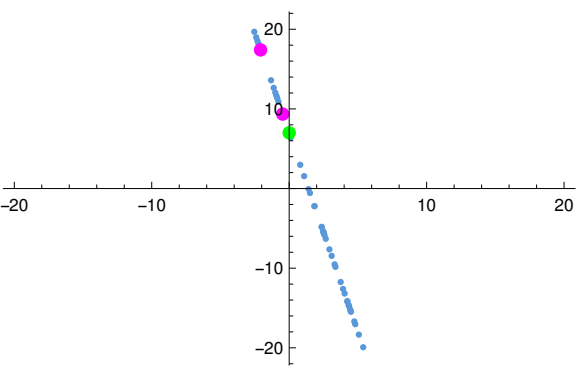


$$y = \overset{m}{-5}x + \overset{b}{7}$$

$$y\text{-Intercept} = y(0) = b = 7$$

$$\bullet \text{ } -5 = \frac{\Delta y}{\Delta x} = \frac{(-14.626) - (-6.30769)}{4.3252 - 2.66154} = \frac{-8.3183}{1.66366}$$

Yet another 2 arbitrary points:



$$y = \overset{m}{-5}x + \overset{b}{7}$$

$$y\text{-Intercept} = y(0) = b = 7$$

$$\bullet \text{ } -5 = \frac{\Delta y}{\Delta x} = \frac{9.35288 - 17.4095}{(-0.470576) - (-2.0819)} = \frac{-8.05664}{1.61133}$$