Lesson 5: Slope as a Rate of Change

Are You Ready? Possible Solutions

1. The slope of a line measures the steepness of the line. The slope of a line is also known as the ratio of the rise over the run between two points on the line.

2.

Type of Slope	Lines
positive	Line C
negative	Lines A and B
zero	Line E
undefined	Line D

3. The following are the correct slopes:

   - Line A $= \frac{2}{5} = 0.4$
   - Line B $= -\frac{3}{2} = -1.5$
   - Line C = -2
   - Line D $= \frac{3}{4} = 0.75$

4. a. $$\begin{aligned} \text{slope} &= \frac{y_2 - y_1}{x_2 - x_1} \\ &= \frac{8-2}{6-3} \\ &= \frac{6}{3} \\ &= 2 \end{aligned}$$

   b. $$\begin{aligned} \text{slope} &= \frac{y_2 - y_1}{x_2 - x_1} \\ &= \frac{-1-6}{5-(-4)} \\ &= \frac{-7}{9} \\ &= -\frac{7}{9} \end{aligned}$$

c. $\text{slope} = \dfrac{y_2 - y_1}{x_2 - x_1}$

$= \dfrac{4-(-3)}{3-(-2)}$

$= \dfrac{7}{5}$

$= 1.4$

5. a. $a^2 = c^2 - b^2$

$y^2 = 53^2 - 45^2$

$y^2 = 2809 - 2025$

$y^2 = 784$

$\sqrt{y^2} = \sqrt{784}$

$y = 28$

b. $\text{slope} = \dfrac{\text{rise}}{\text{run}}$

$= \dfrac{28}{45}$