

Oct 6 3.3 Slope of a Line Segment

Investigate Pg. 162

Slope = $\frac{\text{rise}}{\text{run}}$

1) $\frac{11}{5}$ 2) $\frac{5}{7}$ $\frac{11}{5} = 2.2$ $\frac{5}{7} = .714 \dots$

Different length ramps are used to transport material from inside a moving van to the ground. Movers have found that if the slope of the ramps greater than $\frac{1}{3}$ it is too dangerous to roll heavy objects down the ramp. Are the following ramps safe?

Slope = $\frac{\text{rise}}{\text{run}}$ $\frac{1}{3} = 0.33$ $\frac{0.8}{2.2} = 0.36$ $\frac{0.8}{4.5} = 0.17$

When we are given the endpoints of a line segment we use the following formula to find the slope

$m = \frac{\text{rise}}{\text{run}} = \frac{\Delta y}{\Delta x} = \frac{y_2 - y_1}{x_2 - x_1}$

change y

change x

Slope

A(2, -3) B(7, 6)

$= \frac{6 - (-3)}{7 - 2} = \frac{9}{5}$

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Determine the slope of each of the following lines

$m_{AB} = \frac{5 - 4}{-1 - (-6)} = \frac{1}{5}$

$m_{CD} = \frac{4 - 2}{-1 - (-3)} = \frac{2}{2} = 1$

$m_{EF} = \frac{2 - 2}{6 - (-3)} = \frac{0}{9} = 0$

$m_{GH} = \frac{5 - 3}{8 - 1} = \frac{2}{7}$

Any line that slopes upward has a +ve slope

Any line that slopes downward has a negative slope.

Vertical lines have NO slope.

Horizontal lines always have a slope of 0.

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Determine the endpoint of a line segment given the slope and one endpoint.

The slope of a line segment is 2. It has endpoints $P(-4, -3)$ and $Q(1, k)$. Find the value of k .

x_2, y_2

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

$$Q = (1, 7)$$

$$2 = \frac{k - (-3)}{1 - (-4)}$$

$$2 = k + 3$$

$$10 = k + 3 - 3$$

$$k = 7$$

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Assignment: Pg. 166

7 odds, 8, 9a, 12ab, 17-18 odds

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