

8.1) Slope

May 2, 2016

pg 401

46. Slope is 3.

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

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

$$(2) 3 = \left(\frac{1 - k}{2}\right)^2$$

$$6 = 1 - k$$

$$\frac{5}{-1} = \frac{-k}{-1}$$

$$-5 = k$$

¹ $(2, k)$ and ² $(4, 1)$ What is k ?

Back of outline

2. slope is $-\frac{3}{4} = m$ ¹ $(-6, 8)$ ² $(2, k)$

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

$$-\frac{3}{4} = \frac{k - 8}{2 + 6}$$

$$\frac{8}{1} \left(\frac{-3}{4} \right) = \left(\frac{k - 8}{8} \right)^8$$

$$-6 = k - 8$$

$$2 = k$$

Another way

$$\frac{-3}{4} = \frac{(k - 8)}{8}$$

cross multiplying

$$-24 = 4(k - 8)$$

$$-24 = 4k - 32$$

$$\frac{8}{4} = \frac{4k}{4}$$

$$2 = k$$

Do Back of Outline #1 and 3

$$\#1. m = \frac{y_2 - y_1}{x_2 - x_1}$$

$$2 = \frac{k - 4}{4 - 3}$$

$$2 = \frac{k - 4}{1}$$

$$2 = k - 4$$

$$6 = k$$

$$\#3 m = \frac{y_2 - y_1}{x_2 - x_1}$$

$$\frac{2}{3} = \frac{9 - 5}{10 - k}$$

$$2(10 - k) = 12$$

$$20 - 2k = 12$$

$$-\frac{2k}{-2} = \frac{-8}{-2}$$

$$k = 4$$

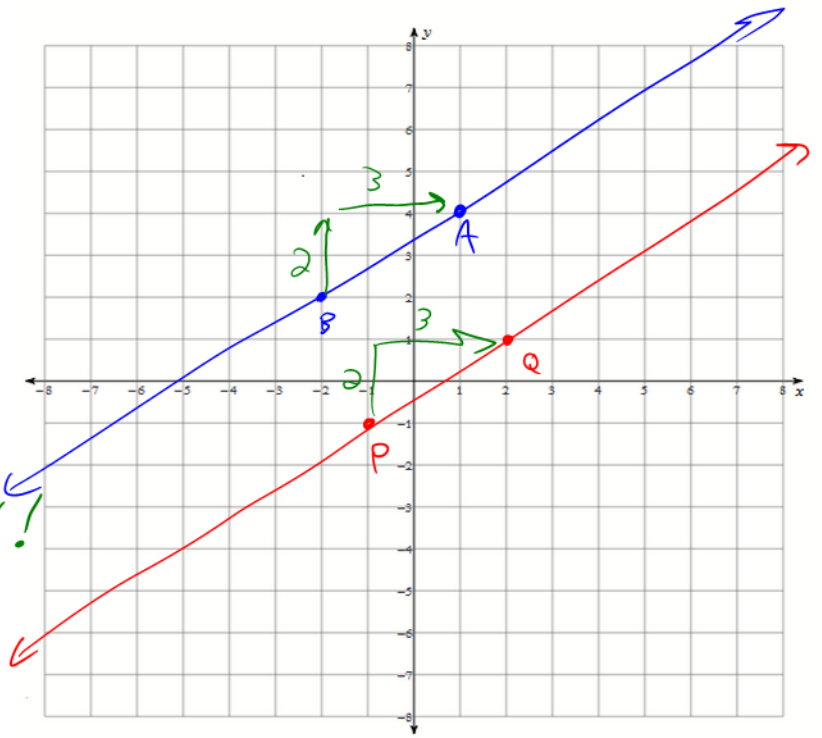
49. $A(1,4)$ $B(-2,2)$

$P(-1,-1)$ $Q(2,1)$

$$m_{AB} = \frac{2}{3} \quad m_{PQ} = \frac{2}{3}$$

same slope means parallel!

Know this!!!!!!



50.

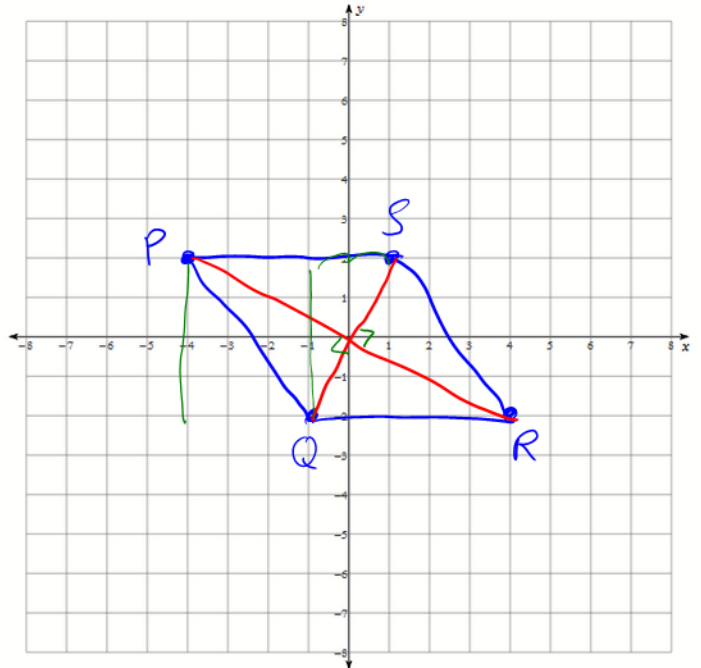
Perpendicular means meets at 90° . PR and QS are Perpendicular.

$$m_{QS} = \frac{4}{2} = \boxed{\frac{2}{1}} = 2$$

$$m_{PR} = \frac{-4}{8} = \boxed{-\frac{1}{2}}$$

perpendicular slopes are the "negative reciprocal" of each other.

exs $m = \frac{3}{5} \Rightarrow m = -\frac{5}{3}$



8.2 | Slope as a Rate of Change. pg 407

1. Birth, 7m long. $\Rightarrow (0, 7)$

7 months, 15m long $\Rightarrow (7, 15)$

x is time

$$m = \frac{y_2 - y_1}{x_2 - x_1} = \frac{15 - 7}{7 - 0} = \frac{8}{7} \text{ means the whale grew } 8 \text{ m in } 7 \text{ months.}$$

OR, 1.14 metres per month.

4. $(1, 10), (2, 20)$

$$m = \frac{y_2 - y_1}{x_2 - x_1} = \frac{20 - 10}{2 - 1} = \frac{10}{1} \therefore \text{the elephant runs at } 10 \text{ m/s}$$

10. a) 1971 to 1981 $(1971, 26.4)$ $(1981, 54.4)$

$$m = \frac{54.4 - 26.4}{1981 - 1971} = \frac{28}{10} = 2.8 \text{ million units per year}$$

$(1981, 54.4)$ and $(1991, 0)$

$$m = \frac{0 - 54.4}{1991 - 1981} = \frac{-54.4}{10} = -5.44 \text{ million units sold per year.}$$

$(1971, 26.4)$ and $(1991, 0)$

$$m = \frac{0 - 26.4}{1991 - 1971} = \frac{-26.4}{20} = -1.32 \text{ million units sold per year.}$$

Homework: pg 400 # 47, 48
pg 407 # 2, 3, 5, 6, 8