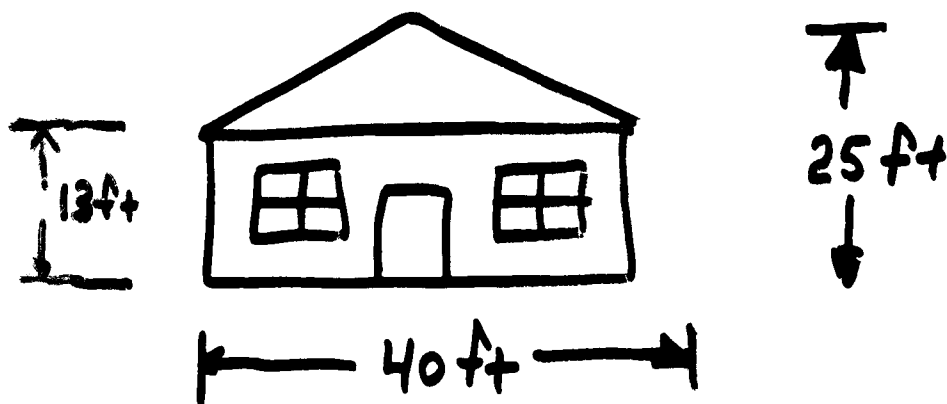


BE-1A

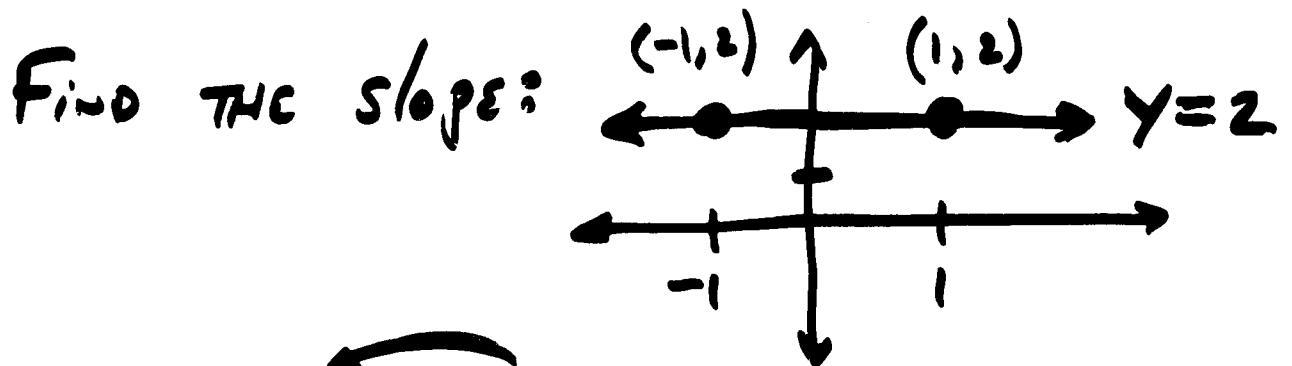
TUESDAY 1-29-08

- ① The variable used for slope is ____?
- ② Define slope.
- ③ Find the slope of the line through each pair of points:
 - Ⓐ $(1, 5), (2, 7)$
 - Ⓑ $(-3, 6), (4, -2)$
- ④ Find the slope of the roof:



• TAKE OUT homework, Pg 259 #5-8 + graph

SLOPE of horizontal and vertical lines.



Use $(-1, 2), (1, 2)$

$$m = \frac{2-2}{1-(-1)} = \frac{0}{2} = \boxed{0 = m}$$

* THE SLOPE OF HORIZONTAL LINES IS ZERO



Use $(3, -1), (3, 1)$

$$m = \frac{1-(-1)}{3-3} = \frac{2}{0}$$

DIVISION BY ZERO
IS UNDEFINED.

* THE SLOPE OF VERTICAL LINES IS UNDEFINED.

RATE

A fraction (ratio) with different units in the top and bottom.

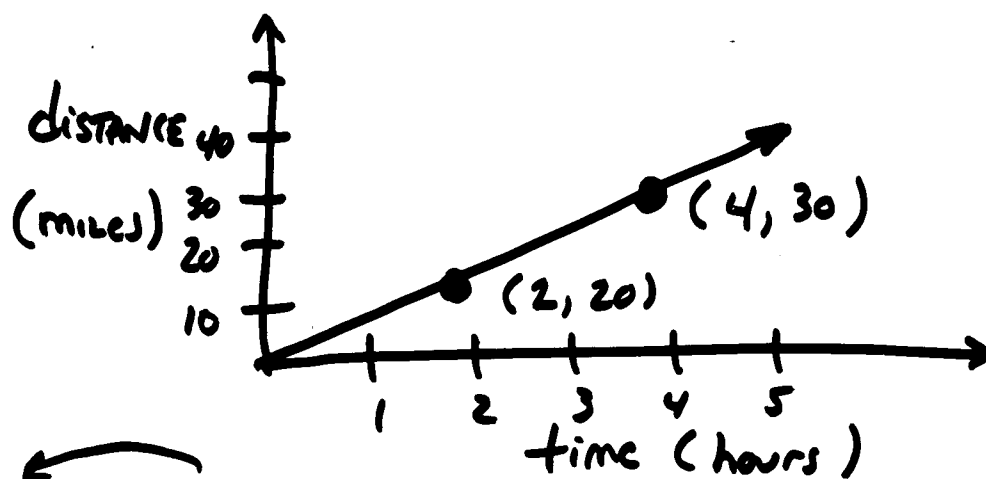
Ex) $\frac{\text{miles}}{\text{hours}}$, $\frac{\text{degrees}}{\text{minutes}}$, $\frac{\text{students}}{\text{school}}$

RATE OF CHANGE

A RATE[↑] WHERE[↑] THE bottom is units of time.

When you have a graph THAT has different units for the X any Y axis, the slope is A RATE!

Ex)

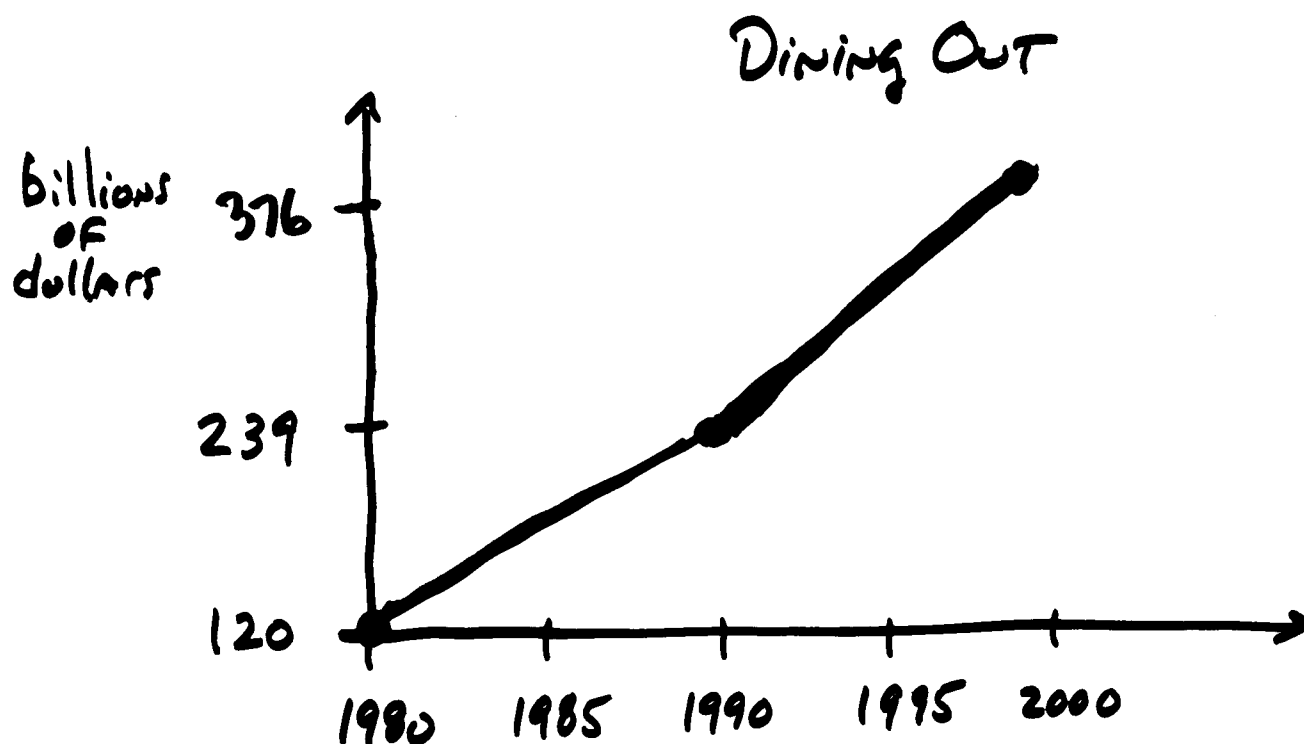


$(2, 20), (4, 30)$

$$\text{slope} = \frac{30 - 20 \text{ miles}}{4 - 2 \text{ hours}}$$

$$m = \frac{10}{2} = \boxed{5 \frac{\text{miles}}{\text{hr}}}$$

Find the two rates of change:



Food and drink sales in the US.

1 billion = 1,000,000,000

m from 1980 to 1990 $\Rightarrow (1980, 120), (1990, 239)$

$$\frac{239 - 120}{1990 - 1980} = \frac{119}{10} = \boxed{11.9} \text{ billions of dollars per year}$$

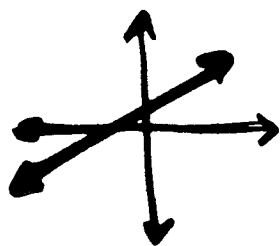
m from 1990 to 2000 $\Rightarrow (1990, 239), (2000, 376)$

$$\frac{376 - 239}{2000 - 1990} = \frac{137}{10} = \boxed{13.7} \text{ billions of dollars per year}$$

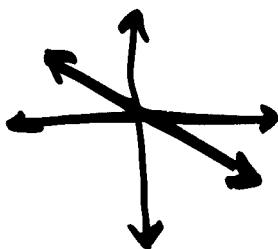
NOTE: Time is usually the domain

EX 6
Pg 258

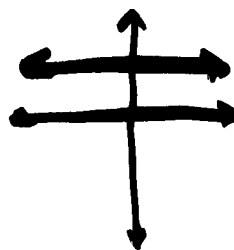
Summary - Ch. 5-1



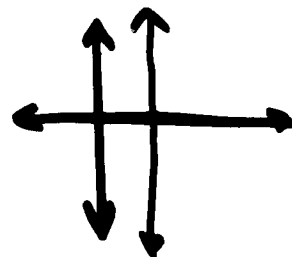
POSITIVE
SLOPE



NEGATIVE
SLOPE



$m = 0$



$m = \text{UNDEFINED}$

- $\text{SLOPE} = m = \frac{\text{rise}}{\text{run}} \Rightarrow \text{MEASURE IT}$
- SLOPE is A NUMBER
- $m = \frac{y_2 - y_1}{x_2 - x_1} \Rightarrow \text{if you know the coordinates of 2 points (any 2) on the line.}$
- if $\frac{\text{rise}}{\text{run}}$ have different units $\Rightarrow$ the SLOPE is A RATE.

HW: Pg 260 # 15 - 22, 35 and 36.