

Sections 1.4 & 2.1

Note Title

9/2/2009

* Office Hours on Tues/Thurs

at 3:30 pm - 4:20 pm

My office is CW22

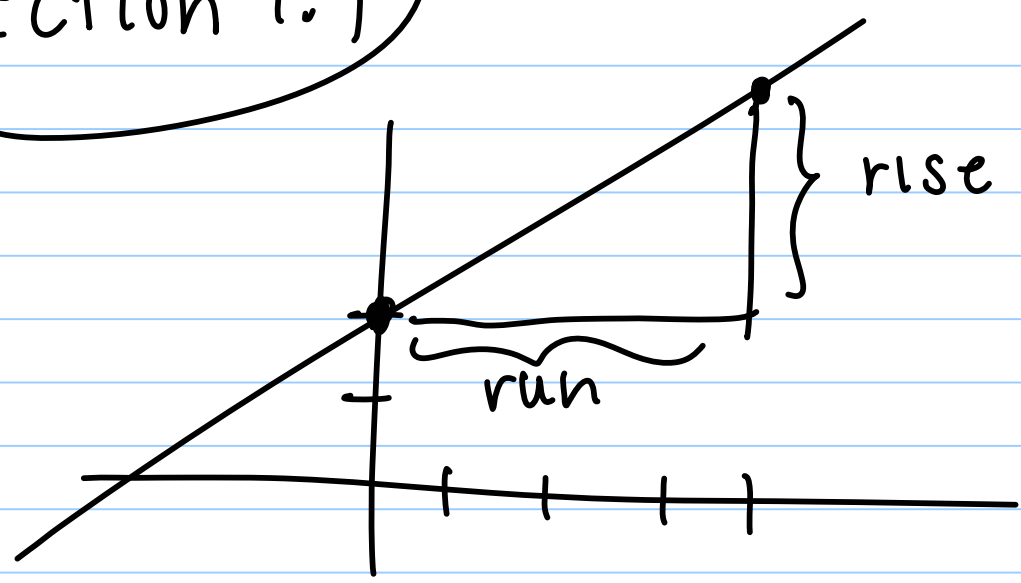
How I grade Iclicker-

1 pt. → answering all 3?

1 pt for each correct answer.

One can earn 4 pts.

Section 1.4



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

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

y-intercept: where the line crosses the y-axis.

Slope Intercept Form: $y = mx + b$ ← y-intercept
 $f(x) = (m)x + b$
↑ Slope

Marginal Cost (Marginal Revenue)
Marginal Profit)

↳ Additional cost to produce 1 more unit of the product.

Ex) Suppose the cost of manufacturing x dining tables is $C(x) = 200 + 15x$.

* What is the marginal cost?

$$C(5) = 200 + 15(5) = \$275$$

$$C(6) = 200 + 15(6) = \$290$$

marginal is \$15 which is the slope.

Ex (from text, pg 62)

Blood Alcohol Percent for
a 180-lb male:

Number of Drinks (x)			5	6	7	8	9	10
Blood Alcohol Percent (y)			.11	.13	.15	.17	.19	.21

* Is the rate of change constant?

Yes

* Next, find the equation of the line that fits this data.

$$\text{Slope: } \frac{\text{rise}}{\text{run}} = \frac{y_2 - y_1}{x_2 - x_1} \quad \begin{matrix} (3, .07) \\ (4, .09) \end{matrix}$$

$$= \frac{.09 - .07}{4 - 3} = .02$$

For every drink consumed by a 180 lb male, the B.A. % increases by .02%.

$$y = mx + b$$

$$y = .02x + b$$

$$.07 = .02(3) + b$$

$$.07 = .06 + b$$

$$b = .01$$

$$y = .02x + .01$$

Linear

I Clicker #1: Refer to # 49
on pg 73

Graphs of Lines

$$-3x + 2y = -14 \quad \underline{\text{Graph.}}$$

* Put in slope-intercept form

$$\frac{2y}{2} = \frac{3x}{2} - \frac{14}{2}$$

$$y = \frac{3}{2}x - 7$$

y-intercept: $(0, -7)$

Another point: $(2, -4)$

Linear Equations

$$3(x-3)+2 = 4x+2$$

Solve for x:

$$3x - 9 + 2 = 4x + 2$$

$$3x - 7 = 4x + 2$$

$$\underline{-3x}$$

$$\underline{-3x}$$

$$-7 = x + 2$$

$$-2$$

$$-2$$

$$\textcircled{-9 = x}$$

Ex) The interest paid on a \$10,000 debt over 3 years, is given by

$$y = 175.393x - 116.287,$$

where x represents the interest rate
any y represents the interest in \$.

If the interest is \$1637.60, what is the corresponding interest rate?

$$\begin{array}{r} 1637.60 = 175.393x - 116.289 \\ + 116.289 \qquad \qquad \qquad + 116.289 \end{array}$$

Answer: $x \approx 10\%$.

$$\frac{1753.887}{175.393} = \frac{175.393x}{175.393}$$

$$x \approx 9.9998$$

IC
#2

$$5F - 9C = 160$$

$$Celsius = 20^{\circ}$$

$$5F - 9(20) = 160$$

$$5F - 180 = 160$$

$$5F = 340$$

D -

$$\begin{array}{r} \overline{) 340} \\ 68^{\circ} \\ \underline{-30} \\ 40 \end{array}$$

Concept of Scaling Down.

0	1995	→	\$5,000) monthly Salary
1	1996	→	\$5,200	
2	1997	→	\$5,400	
3	1998	→	\$5,600	

$t = 0$ represents 1995

For this situation; $m = 200$

y-intercept: 5000

$$y = 200t + 5000, \quad t = \# \text{ of yrs since 1995}$$

✓ checker #3

$$68.2 = 11.75x + 32.95$$

$$x = 3 \rightarrow 1998$$