Today's Plan:

Learning Target (standard): I will describe the slope of a line as a rate of change. I will use this rate of change in applied problems.

Students will: Complete practice problems over previous concepts at the boards, put up homework problems on the board and make necessary corrections to their own work, take notes over new material and complete practice problems over new concepts.

Teacher will: Provide practice problems over previous concepts, check homework problems for accuracy and provide students feedback, describe and provide examples of new concepts and assign students assessment problems over new concepts.

Assessment: Board work, homework check and homework assignment

Differentiation: Students will work at the board, go over and correct homework at their seats, actively engage in lecture over new concepts, practice new concepts with the aid of other students and the teacher and complete homework assignment.

NAME _____   #34

slope $I_y: (0,b)$

BELL RINGER

$y = mx + b$

1.) Write an equation in slope-intercept form of the line that has a slope of 4 and y-intercept is 2.
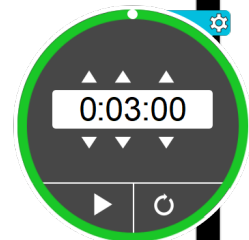
$y = 4x + 2$

2.) Evaluate $f(x) = -2x + 6$ when $x = -9$.

$f(-9) = -2(-9) + 6$ $= 18 + 6$ $f(-9) = 24$

0:03:00

3.) Is the relation $\{(-2, 2), (3, 5), (4, 2), (3, -1)\}$ a function? Explain your answer.
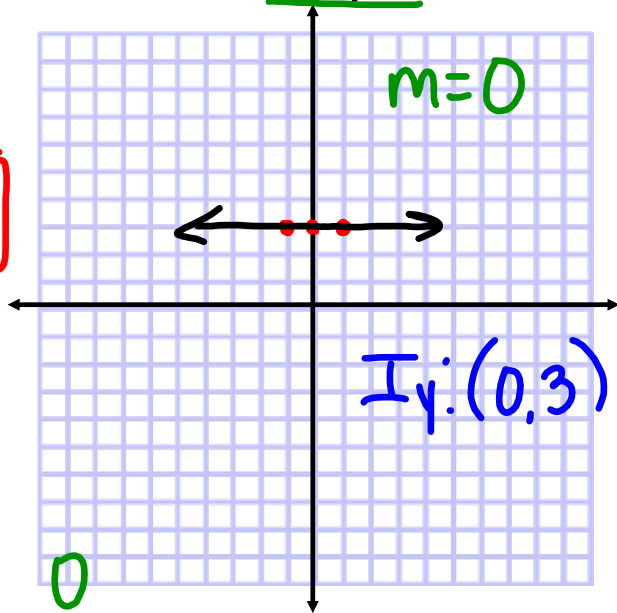
input → one output

$3 → 5$ or -1 (not ok)

Graph using a *t*-chart. Find the slope and intercept as well.

$$4y - 6 = 6$$

$4y = 12$

$$\boxed{y = 3}$$

x	y
-1	3
0	3
1	3

$m = 0$

$I_y: (0,3)$

$$m = \frac{rise}{run} = \frac{0}{\#} = 0$$

List the 6 steps in the 6-step process.

① IV:
  DV:

② $RoC = \dfrac{\Delta\,dependent}{\Delta\,independent}$

③ $RoC = \dfrac{\Delta DV}{\Delta IV}$

④ $RoC = \dfrac{\Delta\,numbers\,DV}{\Delta\,numbers\,IV}$

⑤ $RoC = simplify$

⑥ Sentence

Assignment:

* Use the 6 step process to describe the
  rate of change for each situation. *

1) A hockey team scored two goals in one game and six goals in three games.

① IV: # of games
   DV: # of goals

② RoC = $\dfrac{\Delta \text{dependent}}{\Delta \text{independent}}$

③ RoC = $\dfrac{\Delta \text{goals}}{\Delta \text{games}}$ $\Delta = \text{last} \cdot \text{first}$

④ RoC = $\dfrac{6-2 \text{ goals}}{3-1 \text{ games}}$

⑤ RoC = $\dfrac{4 \text{ goals}}{2 \text{ games}} = \dfrac{2 \text{ goals}}{1 \text{ game}}$

⑥ Every game, 2 goals are scored.

Assignment:

* Use the 6 step process to describe the
  rate of change for each situation. *

3) A car wash attendant washed eight cars in two hours and sixteen cars in four hours.

① independent - time (hours)
   dependent - # cars washed

② RoC = $\dfrac{\Delta \text{dependent}}{\Delta \text{independent}}$

③ RoC = $\dfrac{\Delta \text{ # cars washed}}{\Delta \text{ time (hours)}}$

④ RoC = $\dfrac{16-4 \text{ cars}}{4-1 \text{ hours}}$

⑤ RoC = $\dfrac{12 \text{ cars}}{3 \text{ hours}} = \dfrac{4 \text{ cars}}{1 \text{ hour}}$

⑥ Four cars are washed every hour.

Use the 6-step process to describe the rate of change.

The length of a bus route is 4 mi long on the sixth day and 6 mi long on the seventh day.

① independent - time (days)

  dependent - length of bus route (miles)

② RoC = $\dfrac{\Delta \text{ dependent}}{\Delta \text{ independent}}$

③ RoC = $\dfrac{\Delta \text{ length of bus route (miles)}}{\Delta \text{ time (days)}}$

④ RoC = $\dfrac{6-4 \text{ miles}}{7-6 \text{ days}}$

⑤ RoC = $\dfrac{2 \text{ miles}}{1 \text{ day}}$

⑥ Every day, the length of the bus route increases 2 miles.

Use the 6-step process to describe the rate of change.

A babysitter earns $9 for 1 hour and $36 for 4 hours.

① independent - time (hours)

  dependent - income ($)

② RoC = $\dfrac{\Delta \text{ dependent}}{\Delta \text{ independent}}$

③ RoC = $\dfrac{\Delta \text{ income ($)}}{\Delta \text{ time (hours)}}$

④ RoC = $\dfrac{\$36 - \$9}{4-1 \text{ hours}}$

⑤ RoC = $\dfrac{\$27}{3 \text{ hours}} = \dfrac{\$9}{1 \text{ hour}}$

⑥ The babysitter earns $9 every hour.

Use the 6-step process to describe the rate of change.

A car is 200 km from its destination after 1 hour and 80 km from its destination after 3 hours.

① independent - time (hours)
dependent - distance (km)

② RoC = $\dfrac{\Delta \text{dependent}}{\Delta \text{independent}}$

③ RoC = $\dfrac{\Delta \text{distance (km)}}{\Delta \text{time (hours)}}$

④ RoC = $\dfrac{80-200 \text{ km}}{3-1 \text{ hours}}$

⑤ RoC = $\dfrac{-120 \text{ km}}{2 \text{ hours}} = \dfrac{-60 \text{ km}}{1 \text{ hour}}$

⑥ Every hour, the car gets 60 km closer to its destination.

Use the 6-step process to describe the rate of change.

The cost of tickets to a concert is $36 for three people and $84 for seven people.

① independent - # of tickets
dependent - cost ($)

② RoC = $\dfrac{\Delta \text{dependent}}{\Delta \text{independent}}$

③ RoC = $\dfrac{\Delta \text{cost (\$)}}{\Delta \text{\# of tickets}}$

④ RoC = $\dfrac{\$84-\$36}{7-3 \text{ tickets}}$

⑤ RoC = $\dfrac{\$48}{4 \text{ tickets}} = \dfrac{\$12}{1 \text{ ticket}}$

⑥ The cost per ticket is $12.

Assignment:

* Use the 6 step process to describe the rate of change for each situation. *

1) The cost of two tickets to the Haunted Woods is $39.90 and $78 for four tickets.

2) Shelly delivered twelve newspapers in twenty minutes and thirty-six papers in sixty minutes.

3) Two pounds of apples cost $3.98 and six pounds cost $11.94.

4) An airplane ascended 3000 feet in ten minutes and 4500 feet in fifteen minutes.