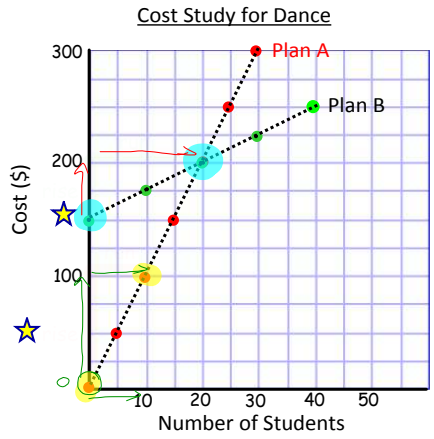
# 4.3 Other Rates of Change/Slope

Ex. 1

Student council is planning a spring dance and has come up with two plans to look at the cost of running the dance.




Is the data discrete or continuous?

Is there a correlation?

a) Which plan has the greater rate of change?

b) Find the rate of change for each plan.

**A:** RoC = $\frac{\text{rise}}{\text{run}}$ **B:** RoC = $\frac{\text{rise}}{\text{run}}$

$= \frac{100\ \$}{10\ \text{students}}$ $= \frac{50}{20}$

$= \$10/\text{student}$ $= \$2.50/\text{student}$

c) Which plan is better?

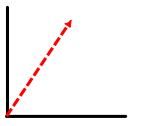
A → less than 20 students

Same → 20 students

B → more than 20 students.

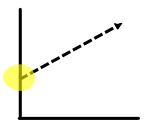
**Note: Plan B has an initial fee (fixed cost) of $150, even if no one shows up!

Plan A



Direct variation
(no fixed cost)
steeper line = greater rate of change

Plan B



Partial Variation
(has a fixed cost)

d) What would each plan cost for 300 people to attend ?

Plan A

Cost = $10 \times 300$

$= \$3000$

Plan B

Cost = $2.50 \times 300 + 150$

$= 750 + 150$

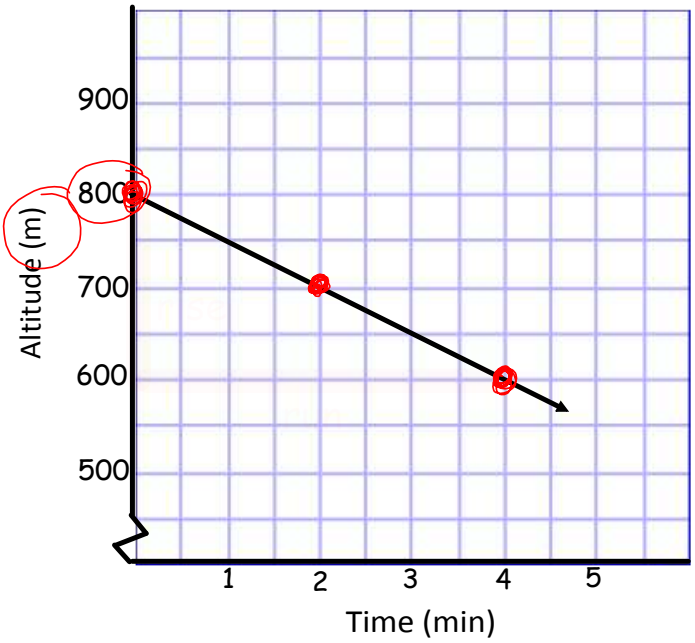
$= \$900$

Better!

Costs less.

Ex. 3

Hike down a Mountain




a) What is the initial height ?

Start

800 m

b) What is the rate of change?

Find 2 GOOD POINTS

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

$$\frac{-100\text{m}}{2\text{ min}} \quad \frac{-200}{4}$$

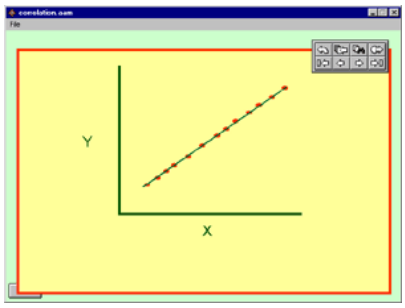
$$= -50 \text{ m/min}$$

c) What does the rate of change tell you ?

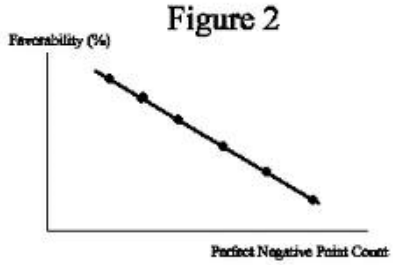
Hike down 50 m per minute

## Did you notice??

➡ Positive correlation: rises to the right, slope/roc is positive or increasing.

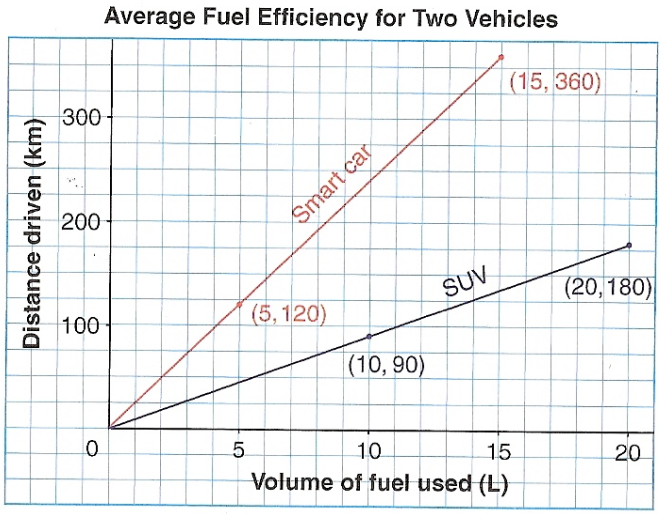



➡ Negative correlation: falls to the right, slope/roc is negative or decreasing.



Ex. 3 page 202 in text "Connect the Ideas "

The graph shows the average fuel efficiency for an older SUV and a new Smart car.




* You dont NEED to copy the graph

Write your Answers on the back of your handout

a) Calculate the rate of change for each vehicle.

☆ To find the rate of change, pick two good points and count the rise and run.

Smart Car: RoC = $\frac{\text{rise}}{\text{run}}$ SUV: RoC = $\frac{\text{rise}}{\text{run}}$

**IN CLASS PRACTICE...**

Finish for Homework
page 203 #1, 2, 4, 7, 8

b) Which car is more efficient? Explain your choice.

☆ The Smart car - it covers more distance, on 1L of gas.

**IN CLASS PRACTICE...**

Finish for Homework

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