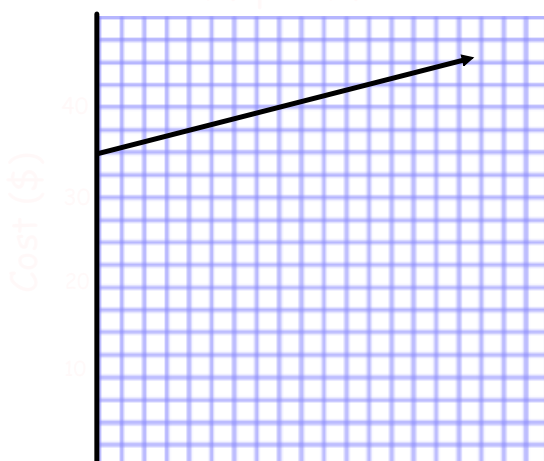


## 4.5 Changing Direct and Partial Variation Situations

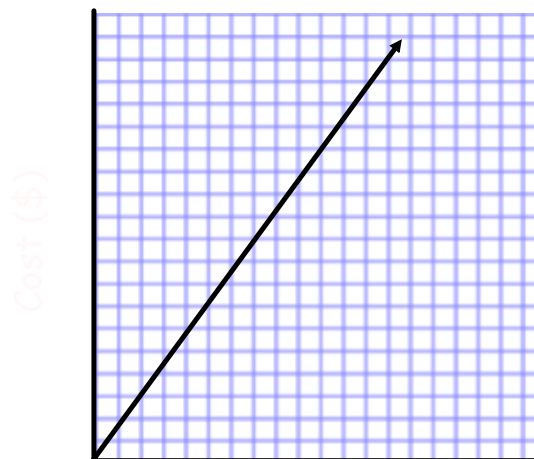
Investigation: page 221 in textbook.



Moped Mania



Creature Comforts



Equation:

$$C = 2L + 35$$

This is **partial variation**.

- Straight line (linear relation).
- Does not go through (0,0),  
∴ has an initial cost.

The situation changes:

- Decreased the fixed cost to \$28.  
This changes the vertical intercept to \$28.
- Increased cost of fuel to \$3/L.  
This increases the slope (rate of change),  
making the line steeper.

$$C = 3L + 28$$



Equation:

$$C = 28n$$

This is **direct variation**.

- Straight line.
- Goes through the origin (0,0).

The situation changes:

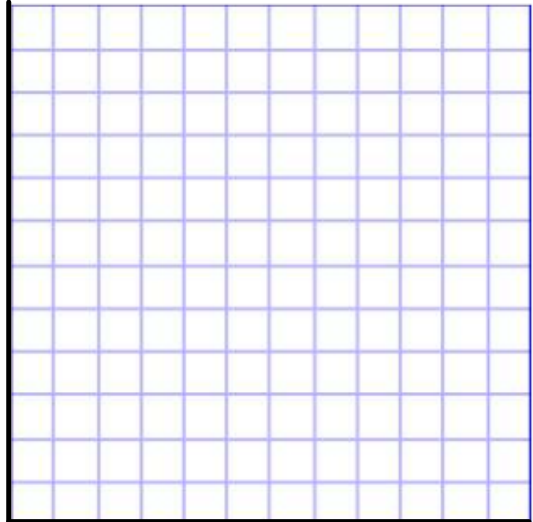
- Increased cost per day to \$30/day.  
This increases the slope (rate of change),  
making the line steeper.

$$C = 30n$$

Ex. 1 : A dinner party at Hungry Helpers costs \$15 per person.

- a) Is this direct or partial variation?
- b) Write an equation with C representing the cost in dollars and p representing the # of people.

- c) Graph the situation.  
Note: This data is \_\_\_\_\_ so we use a \_\_\_\_\_ line.



- d) If the cost changed to \$10/person, what would the graph look like?

- e) Graph the change.

- f) Write a new equation that includes the change.

- g) A new company, Eat More, charges \$30 plus \$7.50/person. What would the graph look like?

- h) Graph this situation.

- i) Write an equation for Eat More's charges.

- j) If you had only two options:

- Hungry Helper at \$15 per person  $C = 15p$   
OR
- Eat More at \$30 plus \$7.50 per person  $C = 7.5p + 30$

Who would be cheaper for you to hire to cater your party?

