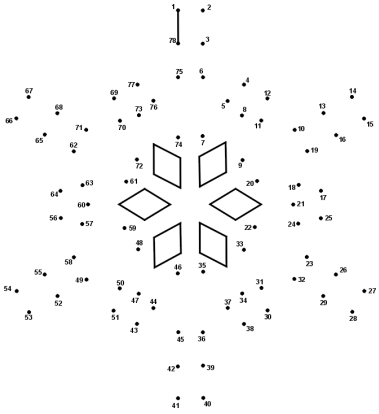
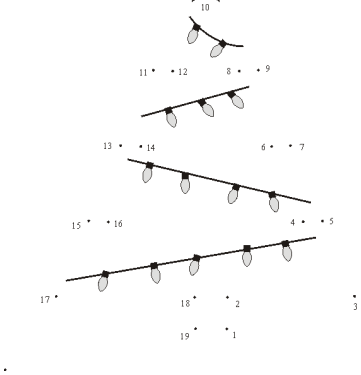
Unit 4
Modelling Equations

(Chapter 5 in textbook!)

Day 5 - Connecting and Applying





So far, we have learned how to identify a linear relation from a(n):

1. Graph
2. Equation
3. Table of values

AND

- we can tell if a linear relation is direct or partial by the graph or by the form of the equation

Direct Var: $y = mx$ 

Partial Var: $y = mx + b$ 

- we can calculate slope of a line

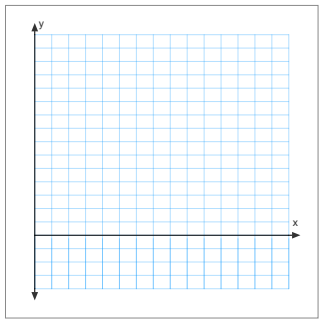
(1) $m = \frac{rise}{run}$ (2) $m = -$ (3) $m = \frac{y_2 - y_1}{x_2 - x_1}$

Now, let's tie it all together!!!

Ex. 1 The following table shows the height above the ground of a snail as it crawls up a pipe.

a) Graph this relation. Is it partial or direct variation?

Time (mins)	Height (cm)
0	-3
3	1
6	5
9	9
12	13



b) Use first differences to confirm that the relation is linear.

c) Calculate the slope.

d) What is the initial height of the snail?

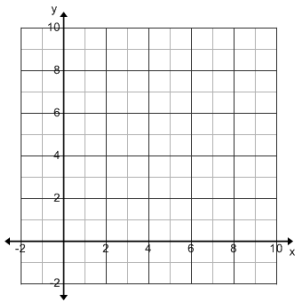
e) Write the equation of the line.

Ex. 2 y varies partially with x. When x = 0, y = 3 and when x = 6, y = 8.

a) Find the slope and the vertical intercept (y intercept) of the line.

b) Write an equation to represent this partial variation.

c) Graph the relation.



Ex. 3 A company tests heavy duty elastic bands by measuring how much they stretch when supporting various masses.

Mass (kg)	0	2	4	6	8
Length (cm)	6.2	9.6	13.0	16.4	19.8

a) Determine if this relation is linear.

b) What does the point (0, 6.2) represent?

c) Calculate the slope. What does it represent?

d) Write an equation in the form of $y = mx + b$.

e) Predict how long the elastic band would be when it is supporting 10 kg.

Today's Practice Questions

Pg 284 – 287 # 1, 5, 7, 9, 10, 13, 16