

**linear relation:** A relation in which the graph forms a straight line

**first difference:** The difference between two consecutive y-values in a table in which the difference between the x-values is constant - if the F.D. is constant then the relationship is Linear

A linear relationship can be identified:

- (a) by its graph, which will be a straight line
- (b) by its First Differences; they will be a CONSTANT value
- (c) by its equation (direct or partial variation)

**Direct variation:** A relation in which one variable is a multiple of the other; recognizable because:

- (i) the table of values will have the entry (0,0),
- (ii) the graph of the line will pass through the origin, or
- (iii) the equation will have the form  $y = mx$  (where m is a number multiplier)

**Partial variation:** A relation in which one variable is a multiple of the other **plus** a constant amount; recognizable because:

- (i) the table of values will NOT have the entry (0,0),
- (ii) the graph of the line will NOT pass through the origin, or
- (iii) the equation will have the form  $y = mx+b$  (where m and b are numbers)

