Direct and inverse proportion

Direct proportion

- If two quantities are in direct proportion, as one increases, the other increases by the same percentage.

inverse proportion

- Inverse proportion is when one value increases as the other value decreases.

Direct proportion example

- **Example 1:**
  The cost of sweets is directly proportional to the number of sweets bought.
  =If 1 sweet costs 10p, 5 sweets cost 5 x 10 = 50p
  or
  =If 10 sweets cost 60p, 1 sweet costs 60/10 = 6p
- **Method :**

- For direct proportion, we find the value of one by division and then multiply to find the total value.
- For example, a car uses 20 litres of petrol in travelling 140 km. How much would be used in a journey of 35 km?
= 1km = 20/140
= 35 kms = 20/140 x 35 = 5 litres
= **Rule**: Divide to find one and then multiply.

Inverse proportion example

If one quantity is inversely proportional to another, it changes in the opposite way — as it increases, the other decreases.

- **Example:**

If 8 men take 4 days to build a wall, how long would it take 2 men? (assuming they work at the same rate)
= First we decide whether the problem is direct or inverse proportion.
= In this case, if less men are used they will take longer, so it is inverse proportion.

- **Method:**

= 8 men take 4 days
= 1 man takes 8 x 4 = 32 days
= 2 men take 32/2 = 16 days
= Again we find the value of one but **by multiplying**. Then divide to find the final answer.