PROPORTION

When a change in one quantity causes a change in another then the quantities are in proportion. If these two quantities are related in such a way that when the first quantity decreases, the second quantity decreases too, we say that the two quantities are in direct proportion to one another. When quantities are in direct proportion, the ratios of their parts are equal. But if as one quantity increases, the second decreases, we say that the two quantities are in indirect or inverse proportion to each other.

Example

1. If 3 cameras cost ₦1,272.00, find the cost of 5 cameras.
   Solving
   At first it proper to reason the question so as to know if the quantities would vary directly or indirectly. This is necessary if the kind of proportion is not mention.
   5 cameras — ₦1,272.00
   5 cameras — ₦x
   $x = \frac{5 \times 1272}{3} = ₦2{,}120.00$
   Comparing ratios
   $3 : 5 \equiv 1{,}272 : 2120$
2. If it takes one tap to fill a tank in 12 hours, it will take three taps (flowing at the same rate) $\frac{12}{3} = 4\ hours$ to fill the same tank.
   Here the number of taps and the time taken to fill the tank are in indirect or inverse proportion. As the number of taps increases, the time taken to fill the tank decreases.
3. If it takes 2 boys to wash a car in 2 hours, how long will it take 4 boys working at the same rate to do it?
   Solving
   2 boys can wash a car in 2 hours
   4 boys can wash a car in x hours
   $x = \frac{2 \times 2}{4} = 1\ hour$

Note inverse proportion can also be called *reciprocal* proportion. Also proportion is the same as *Variation*.