

COMPARING QUANTITIES

FINDING THE INCREASE OR DECREASE PERCENT

IMPORTANT RESULTS

- (i) If there is an increase in any number or quantity from A to B then percentage

$$\text{increase} = \left(\frac{\text{increase in number (or quantity)}}{\text{original number (or quantity)}} \times 100 \right) \%$$

- (ii) If there is a decrease in any number or quantity from A to B then percentage

$$\text{decrease} = \left(\frac{\text{decrease in number (or quantity)}}{\text{original number (or quantity)}} \times 100 \right) \%$$

- (iii) If a quantity increase by $n\%$ then

$$\begin{aligned} \text{New quantity} &= \text{original quantity} + \text{increase in quantity} \\ &= \text{original quantity} + n\% \text{ of original quantity} \\ &= \text{original quantity} + \frac{n}{100} \text{ of original quantity} \end{aligned}$$

$$\text{New quantity} = \left(1 + \frac{n}{100} \right) \times \text{original quantity}$$

- (iv) If a quantity decreases by $n\%$ then

$$\text{New quantity} = \left(1 - \frac{n}{100} \right) \times \text{original quantity}$$

- (v) When two quantities say A and B are given such that $A > B$, then

- (a) The percentage by which greater quantity (A) is greater than smaller quantity (B)

$$\% \text{ increase} = \left(\frac{A - B}{B} \times 100 \right) \%$$

- (b) The percent by which small quantity is less than the bigger quantity

$$\% \text{ decrease} = \left(\frac{A - B}{A} \times 100 \right) \%$$

(vi) When a number A exceeds another number B by x%, then B is less than A by

$$\left(\frac{x}{100+x} \times 100 \right) \%$$

(vii) When a number A is less than number B by x%, then B is more than A by

$$\left(\frac{x}{100-x} \times 100 \right) \%$$