Percentage

Percentage

Percentage means 'for every 100' or 'out of 100'.

Note:

1. Whenever you want to change any fraction into percentage, then multiply it by 100.
2. Whenever you want to change any percentage to the fraction, divide it by 100.
3. Important fractions to percent values to remember:
   a. 1 = 100 %
   b. 1/2 = 50 %
   c. 1/3 = $33\frac{1}{3}\%$
   d. 1/4 = 25 %
   e. 1/5 = 20 %
   f. 1/6 = $16\frac{2}{3}\%$
   g. 1/7 = $14\frac{2}{7}\%$
   h. 1/8 = $12\frac{1}{2}\%$
   i. 1/9 = $11\frac{1}{9}\%$
   j. 1/10 = 10 %
   k. 1/11 = $9\frac{1}{11}\%$
   l. 1/12 = $8\frac{1}{3}\%$
   m. 1/13 = $7\frac{9}{13}\%$
   n. 1/14 = $7\frac{1}{7}\%$
   o. 1/15 = $6\frac{2}{3}\%$
   p. 1/16 = $6\frac{1}{4}\%$
   q. 3/8 = $37\frac{1}{2}\%$
   r. 5/8 = $62\frac{1}{2}\%$
   s. 4/7 = $57\frac{1}{7}\%$

Important rules:

1. If a number is increased by x%, then that number will be (100 + x) % of the previous value.
2. If a number is decreased by x%, then that number will be (100 - x) % of the previous value.
3. If 'x' is a% more than 'y', then 'y' is less than 'x' by $(\frac{a}{100+a}) \times 100\%$
4. If 'x' is a% less than 'y', then 'y' is more than 'x' by $(\frac{a}{100-a}) \times 100\%$
5. If the value of an object is first change by (increased or decreased) by a%, and then changed (increased or decreased) by b% then,
   Net effect = $a \pm b \pm \frac{ab}{100}$
   Note: Net effect increased or decreased according to the +ve or -ve sign respectively.
6. If the price of an item increases or decreases by a%, then the decrease or increase in consumption so as not to increase or decrease the expenditure is equal to
   $$\left(\frac{a}{100 \pm a}\right) \times 100\%$$
7. The passing marks in an examination is P%. if a candidate score R marks and fails by F marks, then the maximum marks
   $$M = \frac{100(R+F)}{p}$$
8. If, in an examination x% of the total number of students failed in subject A and y% of the total number of students failed in subject B and z% failed in both the subjects, then the percentage of the students who passed in both the subjects is given as
   [100 – (x + y - z)] %.
9. If the population of a town is P and it increases (or decreases) at the rate of R% per annum, then
   • Population, after n years = $P\left(1 \pm \frac{R}{100}\right)^n$
   • Population, n years ago = $\frac{P}{\left(1 \pm \frac{R}{100}\right)^n}$