

BALABHADRA SKILL DEVELOPMENT ACADEMY
MATHS FORMULA - 8
ARITHMETIC

PERCENTAGE

SI	Situation	Formula
01	y% of x	$\frac{xy}{100}$
02	To convert a fraction into percent, multiply the fraction by 100 and then put the sign '%'	$\frac{5}{35} = \frac{5}{35} \times 100\% = 14\frac{2}{7}\%$
03	To convert the given percentage into fraction, remove the sign% and divide the quantity by 100	$24\% = \frac{24}{100\%} = 0.24$
04	The percent of one quantity to another	$\frac{\text{First quantity}}{\text{Second quantity}} \times 100\%$
05	If A's income is x% more (or less) than that of B's, then B's income is less (or more) than that of A's.	$\frac{x}{100 \pm x} \times 100\%$
06	If the price of a commodity is increased (or decreased) by x%, then the decrease (or increase) in consumption, so as not to increase (or decrease) the expenditure, is	$\left(\frac{x}{100 \pm x} \times 100\% \right)$
07	If a number is increased by x% and then decreased by x%, then there is always a decrease in number. This decrease is equal to	$\frac{x^2}{100}\%$
08	If the value of a number is first increased (or decreased) by $x_1\%$ and then decreased (or increased) by $x_2\%$, then not effect	$\left[\pm x_1 \pm x_2 + \frac{\pm x_1 \times \pm x_2}{100} \right]\%$ (if result is positive there is increase, if negative there is decrease in number)

09	<p>If the population of a town is P and population increases or decreases by x% annually,</p> <p>(a) then population of town after n yr will be A.</p>	$A = P \left(1 \pm \frac{x}{100} \right)^n$
	<p>(b) Population n yr ago, A</p>	$A = \frac{P}{\left[1 \pm \frac{x}{100} \right]^n}$
10	<p>If the population of a town is P and it increases by $x_1\%$, $x_2\%$, $x_3\%$ and so on annually in different years, then population after 3 yr will be A.</p>	$A = P \left(1 + \frac{x_1}{100} \right) \left(1 + \frac{x_2}{100} \right) \left(1 + \frac{x_3}{100} \right)$
11	<p>The passing marks in an examination is P%. If a candidate scores R marks and fails by F marks, then maximum marks of examination</p>	$\text{Max Marks} = \frac{100(R + F)}{P}$