



Mathematics Notes On Percentage

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Percentage

- Percentage is per-cent which means parts per hundred.

Percent sign

- The percent sign is the symbol:** %
- It is written to the right side of the number:
50%

Percentage Definition

- The percentage is a value that represents the proportion of one number to another number.
- 1 percent** represents **1/100** fraction.

If we have to convert the percentage into fraction than it is divided by 100.

Example 1:- if we write **45%** then it's equal to **45/100** or infraction **9/20** or in decimal **0.45**

If we have to convert the fraction into percentage we have to multiply with 100.

Example 2:- if we write **3/5** infraction it is equal to **60% = 3/5 x 100 = 60**.

Convert Percentage into Decimal:

- 20%** = 20/100 = 0.5

Convert Decimal Into Percentage:

- 0.25** = (0.25 × 100) % = 25%
- 1.50** = (1.50 × 100) % = 150%

Here is a table of commonly used values shown in Percent, Decimal and Fraction

Percent	Decimal	Fraction
1%	0.01	$\frac{1}{100}$
5%	0.05	$\frac{1}{20}$
10%	0.1	$\frac{1}{10}$
12½%	0.125	$\frac{1}{8}$
20%	0.2	$\frac{1}{5}$
25%	0.25	$\frac{1}{4}$
33⅓%	0.333...	$\frac{1}{3}$
50%	0.5	$\frac{1}{2}$
75%	0.75	$\frac{3}{4}$
80%	0.8	$\frac{4}{5}$
90%	0.9	$\frac{9}{10}$
99%	0.99	$\frac{99}{100}$
100%	1	
125%	1.25	$\frac{5}{4}$
150%	1.5	$\frac{3}{2}$
200%	2	

Types of Formulas and Short Tricks

Type 1: Percentage Increase/Decrease:

- If the price of a commodity increases by **R%**, then the reduction in consumption so as not to increase the expenditure is: $[R / (100 + R)] \times 100\%$
- If the price of a commodity decreases by **R%**, then the increase in consumption so as not to decrease the expenditure is: $[R / (100 - R)] \times 100\%$

Type 2: Results on Population:

Let the population of a town be **P** now and suppose it increases at the rate of **R%** per annum, then:

- Population after **n** years = $P(1 + R/100)^n$
- Population **n** years ago = $P / (1 + R/100)^n$

Type 3: Results on Depreciation:

Let the present value of a machine be **P**. Suppose it depreciates at the rate of **R%** per annum. Then:

- Value of the machine after **n** years = $P(1 - R/100)^n$
- Value of the machine **n** years ago = $P / [(1 - R/100)^n]$
- If **A** is **R%** more than **B**, then **B** is less than **A** by = $[R / (100 + R)] \times 100\%$
- If **A** is **R%** less than **B**, then **B** is more than **A** by = $[R / (100 - R)] \times 100\%$

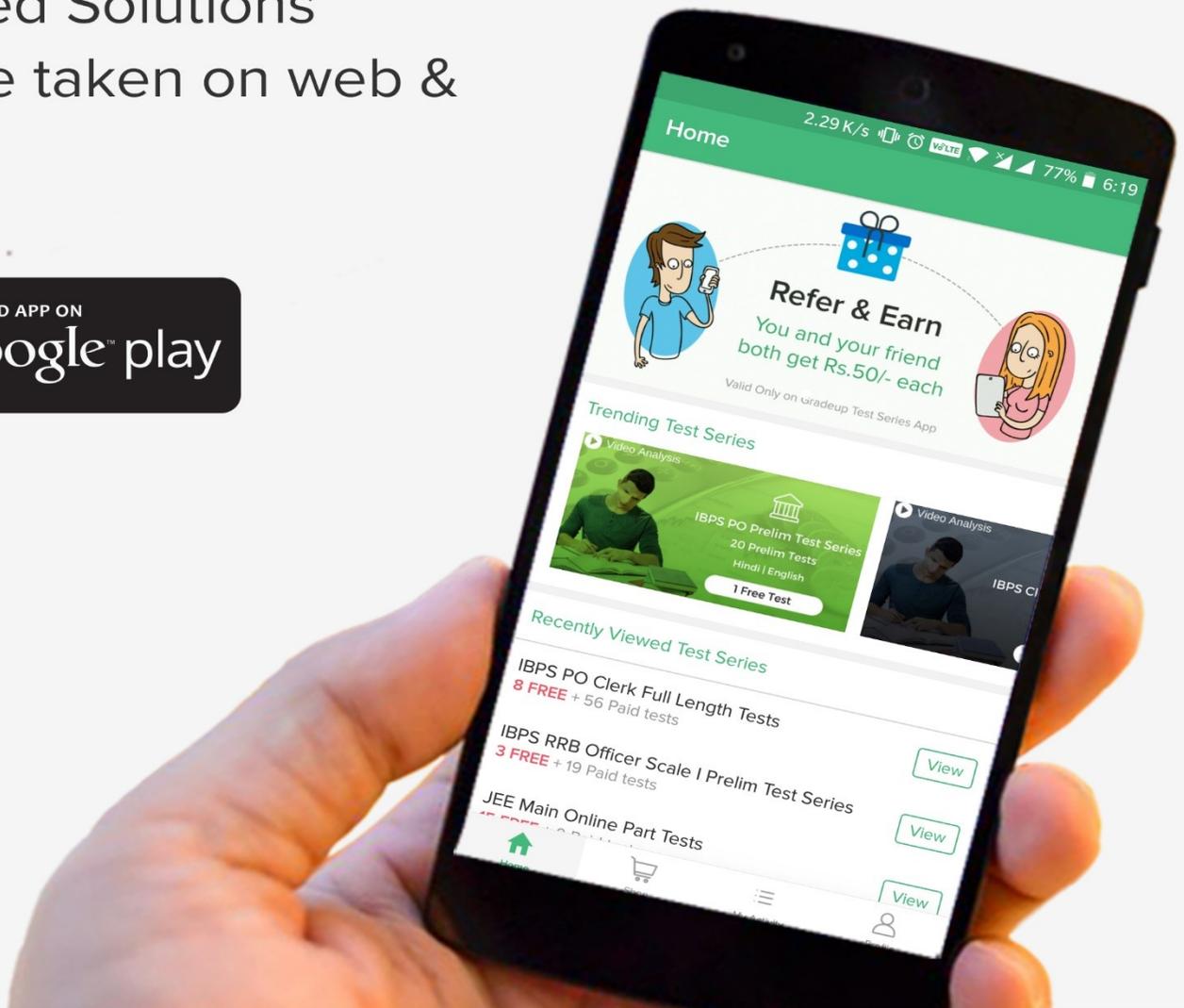
Note: For two successive changes of **x%** and **y%**, net change = $\{x + y + xy/100\}\%$



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