

byte<sup>XL</sup>

Percentages

**PERCENTAGE** : per ---→ Cent (Value per hundredth)  
Per Hundred ( $x / 100$ )

**Ex:** If a student Secure 75 marks out 100 marks, the Percentage marks secured by that particular student is ??

**Solution:**  $75 / (\text{total}) 100 * 100$   
75 %

**Ex:** If your Monthly Total Pocket money Is Rs.1500 and at the end of any particular month you are left with Rs 600. Find how much % money was spent during that month.

**Solution:**

Total= 1500

Savings = 600

Money Spent =  $1500 - 600 = 900$

$\% \text{ Spent} = 900 \text{ (Expenditure)} / 1500 \text{ (Total)} * 100$   
 $= 60 \%$

**# PERCENTAGE** has its application in wide range of topics like

1. Number system & simplification
2. Data Interpretation
3. Profit and Loss
4. Interest: Simple and Compound
5. Discounts

## Percentage and Fractions

# 100 % means total out of total.

# If we take 100 % as 1, It means 1/1 i.e. 1

### Fractions %

1      100

1/2      50

1/3      33.33      or 33 1/3

1/4      25

1/5      20

### Fractions

### %

1/6

16.66      or 16 2/3

1/7

14.28      or 14 2/7

1/8

12.50

1/9

11.11

1/10

10

1/11

9.09

1/12

8.33

1/13

7.69

1/14

7.14

1/15

6.66

1/16

6.25

1/17

5.88

1/18

5.55

1/19

5.26

1/20

5

What is 37.5% of 48?

$37.5 = 25\% \text{ and } 12.5\%$

What is 64.6% of 50?

$60\% + 5\% - 0.4\%$

❖ **X % of Y is always equal to Y% of X**

❖ **Example:**

$$36 \% \text{ of } 50 = 50 \% \text{ of } 36$$

$$20\% \text{ of } 96 = 96\% \text{ of } 20$$

1. If 50% of  $P = 25\%$  of  $Q$  ; then  $P = X\%$  of  $Q$  ; Find  $X$
2. If 90% of  $A = 30\%$  of  $B$  ; then  $B = 2X\%$  of  $A$  ; Find  $X$
3. If  $20\%$  of  $(P+Q) = 25\%$  of  $(P-Q)$  ; then  $P : Q$  (ratio)
4. If  $40\%$  of  $(A+B) = 60\%$  of  $(A-B)$  ; then  $2A - 3B / A + B$  is
5. If  $20\%$  of  $(A+B) = 50\%$  of  $B$  ; then  $2A - B / 2A + B$  is



X is what percentage of Y =  $X / Y * 100$

Y is what percentage of X =  $Y / X * 100$

Example;

1. If  $X = 30$  and  $Y = 80$  . Find X is what % of Y ?
2. If  $X = 60$  and  $Y = 180$  . Find Y is what % of X ?
3. What percentage of 8000 is 360 ?

A fruit seller had some apples. He sells 40% apples and still has 420 apples. Originally, he had:

- A. 588 apples
- B. 600 apples
- C. 672 apples
- D. 700 apples

Answer: D

A batsman scored 110 runs which included 3 boundaries and 8 sixes. What percent of his total score did he make by running between the wickets?

- A. 45%
- B.  $45 \times 5/11\%$
- C.  $54 \times 6/11\%$
- D. 55%

Answer: B

Three candidates contested an election and received 1136, 7636 and 11628 votes respectively. What percentage of the total votes did the winning candidate get?

- A. 57%
- B. 60%
- C. 65%
- D. 90%

**Answer: A**

## Percentage Increase/Decrease:

X is what percentage more or less than Y ?

$$= (X - Y) / Y * 100$$

(or)

- ❖ 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:

$$R / (100 - R) \times 100 \%$$

If X's income is 25 % more than Y's. By how much percentage is Y's income less than x's income ?

A. 20

B. 30

C. 40

D. 50

Answer: A

If X's income is 20 % less than Y's. By how much percentage is Y's income more than x's income ?

A. 20

B. 25

C. 30

D. 35

Answer: B

In 2008, the price of a mobile increases 20 % with respect to that in 2007.  
By what percentage is its price in 2007 less than that in 2008 ?

A. 16.67%

B. 25%

C. 33.33%

D. 35%

Answer: A



In an examination, Mani's score is 10 % less than Mahesh's score. By what percentage, Mahesh's score is more than Mani ?

A. 12.12

B. 13.13

C. 11.11

D. 30.3

Answer: C

Rohit salary is 20% less than gaurav's salary. if karan salary is Rs.20000 and it is 25% more than gaurav's salary, then what is rohit salary ?

- A. 12000
- B. 19200
- C. 16000
- D. 24000

Answer: A

A's salary is 20% less than B's salary. if C's salary is Rs.10000 and it is 25% more than B's salary, then what is A's salary ?

A. 6800

B. 5000

C. 6000

D. 4000

Answer: C

In an examination, 35% of students failed in quant and 42% of students failed in verbal while 14% failed in both the topics. If 222 students passed in both the topics, how many students appeared to write the examination?

A. 500

B. 400

C. 600

D. 700

Answer: C

**Answer: Option C**

**Explanation:**

Percent of students failing quants = 35

Percent of students failing verbal = 42

Sum =  $35 + 42 = 77$

Percent of students failing both = 14

$\Rightarrow$  Percent of students failing either one =  $77 - 14 = 63$ . Thus, 37% students passed in both the topics

$\Rightarrow 37\%$  of  $x = 222$

$\Rightarrow x = 600$

The total number of students is 600.

**Result on Population:** Let the population of a town be  $P$  now and suppose increases the rate of  $R\%$  per annum, then:

$$1. \text{Population after } n \text{ years} = P (1 + R/100)^n$$

**Result on Depreciation:** Let the present value of a machine be  $P$ . Suppose depreciates at the rate of  $R\%$  per annum Then:

$$1. \text{Value of the machine after } n \text{ Years} = P (1 - R/100)^n$$

$$\text{Net \% change} = x + y + xy/100$$

The population of a town increased from 1,75,000 to 2,62,500 in a decade.  
The average percent increase of population per year is:

- A. 4.37%
- B. 5%
- C. 6%
- D. 8.75%

Answer: B

The price of the potato is increased by 20% and consumption decreased by 10%. What will be the percentage change in expenditure ?

- A. 4%
- B. 5%
- C. 6%
- D. 8%

Answer: D



If the price of a commodity is decreased by 20% and its consumption is increased by 20%, what will be the increase or decrease in expenditure on the commodity?

- A. 4%
- B. 5%
- C. 6%
- D. 8%

Answer: A