

For all OSSC & Police Exam

Math Class

Percentage

Handwritten notes explaining percentage conversion:

- $20\% \Rightarrow \frac{20}{100} \Rightarrow \frac{1}{100}$
- $\frac{20}{100} \Rightarrow ? \Rightarrow \frac{20}{100} \times 100 = 20\%$
- Diagram showing $20\% \rightarrow \frac{20}{100}$ and $\frac{1}{100}$ with arrows indicating relationships.
- A circled 100 is shown.

Handwritten notes in red ink:

- $28\% \Rightarrow \frac{28}{100} \Rightarrow 0.28$
- $28 \times \frac{1}{100} = \frac{28}{100}$
- Handwritten signature: WONMAS

28% of 450 + 45% of 280

Handwritten calculations for the above problem:

$$\frac{28}{100} \times 450 + \frac{45}{100} \times 280$$

$126 + 126 = 252$

2 is what percent of 50?

Handwritten solution in red ink:

$$2 \times \frac{100}{50} \Rightarrow 4\%$$

The number 100 is circled in red.

$$\frac{2}{50} \times 100 \Rightarrow 4\% \quad (100)$$

$$\frac{360}{360} \Rightarrow 60$$

$$\frac{360}{60} \times 100 = 60\%$$

$$\Rightarrow 1 \text{ kg} \Rightarrow 1000 \text{ gms} \Rightarrow 1000 \rightarrow \text{M.R.P}$$

$$\Rightarrow 1000 \times \frac{120}{100}$$

$$\Rightarrow 1200$$

$$\frac{200}{200}$$

$$1200 - 1000 \rightarrow 200$$

$$1000 \times \frac{80}{100}$$

$$\Rightarrow 800$$

$$\frac{800}{1000} \times 100 \Rightarrow 100 - 80\%$$

$$\Rightarrow 20\%$$

$$1000 \text{ gms} \rightarrow 100\%$$

$$100 \rightarrow 20\%$$

$$100\% + 20\% = 120\%$$

$$\Rightarrow 120\%$$

$$30\%$$

$$100\% - 20\% = 80\%$$

✓ Three students contested an election and received ^{A B} 1000, 5000 and 10000 votes, respectively. What is the percentage of the total votes the winning student gets?

① $1000 + 5000 + 10000 \rightarrow 16000$
 $\frac{10000}{16000} \times 100 \Rightarrow 62.5\%$

By how much is 80% of 40 greater than 4/5 of 25?

$40 \times 80\% = 32$
 $25 \times \frac{4}{5} = 20$
 $32 - 20 = 12$

✓ If the price of a product is first decreased by 25% and then increased by 20%, then what is the percentage change in the price?

① $100\% \rightarrow 25\% \rightarrow 75\%$
 $100 \rightarrow 120\%$
 $75 \times \frac{120}{100} = 90$
 $100 \rightarrow 100 - 90 = 10\%$
 $\frac{a \pm b \pm \frac{a \times b}{100}}$

$(a \times b) \rightarrow \frac{a \pm b \pm \frac{a \times b}{100}}$
 $\rightarrow -25 + 20 + \frac{(-25 \times 20)}{100}$
 $\rightarrow -25 + 20 + \frac{-500}{100}$
 $\rightarrow -5 - 5$
 $\rightarrow -10\%$
 For 10%

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✓ If 10% of A is equal to 12% of B, then 15% of A is equal to what per cent of B?

$10\% \text{ of } A = 12\% \text{ of } B$
 $15\% \text{ of } A = ? \text{ of } B$
 $\frac{10\% \text{ of } A}{10\% \text{ of } A} = \frac{12\% \text{ of } B}{10\% \text{ of } A}$
 $15\% \text{ of } A = \left(\frac{12 \times 15}{10} \right) \% \text{ of } B$
 $= 18\%$

$15\% \cdot A = 18\% \cdot B$

✓ 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?

Handwritten calculations for the batsman problem:

$$110 \begin{cases} \xrightarrow{6} 8 \times 6 \Rightarrow 48 \\ \xrightarrow{4} 3 \times 4 = 12 \end{cases}$$

$$\begin{array}{r} 110 \\ - 60 \\ \hline 50 \end{array}$$

50 → Run

$$\frac{50}{110} \times 100 = \frac{50}{11} \%$$

→ $45 \frac{5}{11} \%$

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

Handwritten calculations for the fruit seller problem:

$$100 \Rightarrow 100\%$$

$$100\% - 40\% = 60\%$$

$$60\% \Rightarrow 420$$

$$420 \times \frac{100}{60} = 700$$

Originally he had 700 apples.

H. - A

$$60\% = \frac{60}{100} \Rightarrow \frac{7500}{100} = 75$$

75

✓ In an election between two candidates, one got 55% of the total valid votes, 20% of the votes were invalid. If the total number of votes was 7500, the number of valid votes that the other candidate got, was:

7500 = 100%
 20% Invalid
 80% Valid

$$7500 \times \frac{80}{100} = 6000$$

Valid 6000

$$6000 \times \frac{55}{100} = 3300$$

Valid 3300

$$6000 \times \frac{45}{100} = 2700$$

Valid 2700

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

1 2 3

$$1136 + 7636 + 11628 = 20400$$

20400

$$\frac{11628}{20400} \times 100 = 57\%$$

$$\frac{11828}{20400} \times 100 = 58\%$$

② Two tailors X and Y are paid a total of Rs. 550 per week by their employer. If X is paid 120 percent of the sum paid to Y, how much is Y paid per week?

Handwritten solution for the tailor problem:

$$Y \rightarrow P \rightarrow Z$$

$$Z + 20\% \text{ of } 120\% = 550$$

$$Z + 2 \times \frac{120}{100} Z = 550$$

$$Z + 2.4Z = 550$$

$$3.4Z = 550$$

$$Z = \frac{550}{3.4} = 161.76$$

$$Y = 550 - 161.76 = 388.24$$

✓ 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:

Handwritten solution for the population problem:

10 years → 10 years → $2,62,500 - 1,75,000$

$$= 87,500$$

$$\frac{87,500}{1,75,000} \times 100 = 50\%$$

Handwritten notes including a large '7', the number '17500', a crossed-out '05/10', and a circled scribble.