

In the pursuit of success in the WBP Constable Exam, a strong foundation in mathematical concepts is crucial, and one such fundamental concept is Percentage. This comprehensive guide on Theory and Questions related to Percentage is designed to be your key ally in mastering this mathematical aspect. Understanding and applying the principles of percentage is not only vital for acing the exam but also for practical real-life scenarios.

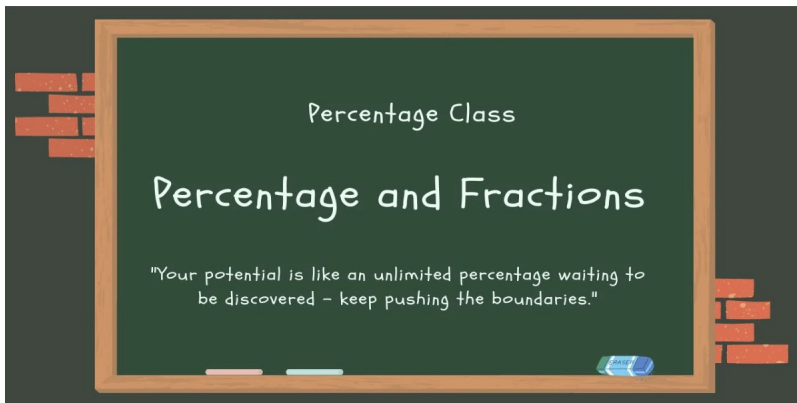
With this resource, you will explore the theory behind percentages and engage in practice questions that will sharpen your problem-solving skills. Get ready to boost your math proficiency and approach the WBP Constable Exam with confidence.

## Percentage for WBP Constable Exam

Today we are going to learn about Percentages in the quant section, it is a very famous topic in the world of the WBP Constable Exam. We saw 2-3 questions are asked every year from percentages. Let's first learn what we mean by percentage.

Percentage, which is clear by name, implies "for every hundred". This concept is actually developed to make the comparison of fractions easier by equalising the denominators of all fractions to hundred. The percentage is derived from the Latin word "per centum" which means "per hundred" and it is denoted by %. A fraction with denominator 100 is called percentage. Similarly, a fraction with denominator 10 is called a **decimal**.

(Have you heard about this?)



So, let's check how to tackle the percentage problem in different ways.

## Fraction into Percentage

Let  $a$  and  $b$  are two integers with  $b \neq 0$ . To convert a fraction ' $a/b$ ' in percentage, multiply it with 100 and put a '%' sign.

E.g. Convert  $4/5$  into a percentage.

Sol: We have to multiply this fraction to 100 first

Theory and Questions on Percentage for WBP Constable Exam

$\Rightarrow 4/5 \times 100 = 400/5 = 80$

Now we have to put a '%' sign at the end

$\Rightarrow 80\%$

Hence, 4/5 is 80%. **(Ans.)**

There are some frequently occurring fractions so we should remember them. Let's learn about these fractions.

Fraction	Percentage value	Fraction	Percentage Value
1/1	100%	1/11	9.0909%
1/2	50%	1/12	8.333%
1/3	33.333%	1/13	7.69%
1/4	25%	1/14	7.14%
1/5	20%	1/15	6.666%
1/6	16.666%	1/16	6.25%
1/7	14.28%	1/17	5.88%
1/8	12.5%	1/18	5.555%
1/9	11.111%	1/19	5.26%
1/10	10%	1/20	5%



Let's take an example to understand the use of this table.

**E.g.** Find 42.84% of 91.

**Sol:** Looks like a very difficult or calculation lengthy question. But here, we can see that, 84 is double of 42 and there is only 1 fraction in which this doubling concept applied i.e. 1/7.



Now, we just have to check whether 42 is divisible by 14 or not. Yes, it is 3 times of 14, so, 42.84% will be 3 times of  $1/7$ .

So, 42.84% of 91 =  $3/7 \times 91 = 3 \times 13 = 39$ .

Let's take one more example.

**E.g.** Find 37.5% of 32.

**Sol:** 37.5 is clearly three times of 12.5 (as 36 is three times of 12 and also there is only one case which ends with .5 which is 12.5). So, 37.5 is also 3 times of  $1/8$ .

So, 37.5% of 24 =  $3/8 \times 24 = 3 \times 3 = 9$ .

## Percentage into Fraction

To convert the percentage into fraction, divide the number by 100 and remove the % sign.

**E.g.** Convert 9.09% into fraction form.

**Sol:** First, we have to divide this by 100

$$\Rightarrow 9.09/100 = (100/11\%)/100$$

(As we know 9.09 can be written as 100/11)

$$\Rightarrow 1/11\%$$

Now remove the % sign.

$$\Rightarrow 1/11$$

Hence, 9.09% =  $1/11$  (**Ans.**)

Now, let's take a question asked in **WBP Constable Exam**.

**E.g.** Conversion of 0.5% in decimal is **[WBP Constable Exam 2016]**

**Sol:** To convert any percentage into decimal we have to divide it by 100.

$$\Rightarrow 0.5/100 = 5/1000 = 0.005.$$

Now, let's look at a word problem and then we will move on.

**E.g.** A student scored 85% marks. The total marks were 400. How much did he score?

**Sol:** As his marks are 85% of total marks and total marks are 400

$$\Rightarrow \text{His score} = 85\% \text{ of } 400$$





$$\Rightarrow \text{His score} = (85 / 100) \times 400$$

$$\Rightarrow \text{His score} = (85) \times 4 = 340 \text{ (Ans.)}$$

## Effect of Percentage Change on any Quantity

Let a number 'p' be increased by 'x%' then new quantity will be

$$\Rightarrow \{(100 + x) / 100\} \times p$$

Similarly, when 'p' decreases by 'x%' then new quantity will be

$$\Rightarrow \{(100 - x) / 100\} \times p$$

Let's understand these formulae with an example.

**E.g.** The present salary of Amit is 3000. His salary will be increased by 15% next year, find his increased salary.

**Sol:** His salary is increased by 15% so here x is 15.

According to formula =  $\{(100 + x) / 100\} \times p$

By substituting the values,

$$\Rightarrow \{(100 + 15) / 100\} \times 3000 = \{115 / 100\} \times 3000 = 115 \times 30 = 3450 \text{ (Ans.)}$$

Here we saw there could be an increase or decrease in quantity by some percentage.

## Successive Increase and Decrease in Percentage

Let's take an example to understand this.

**E.g.** If the length of the rectangle increases by 30% and the breadth of the rectangle decreases by 12%. Find the overall change in the area of a rectangle.

For this type of question, we don't have to opt these long conventional methods, we have to just spell a magic formula,

$$\text{Total percent change} = x + y + xy/100$$

Where 'x' and 'y' are percentage changes on quantity. Signs of 'x' and 'y' would depend on fluctuation in quantity.

**Sol:** Here  $x = +30$  and  $y = -12$

By putting values

$$\Rightarrow x + y + xy/100$$



$$\Rightarrow 30 - 12 - 30 \times 12/100 = 18 - 36/10 = 18 - 3.6 = 14.4\% \text{ (Ans.)}$$

YEAHH our magic worked.

Now, Let's look at some question on Percentage that were asked in **WBP Constable Exam**.

## Examples on Percentage for Better Understanding

**E.g.** From the salary of a man, 20% of it was deducted. How much of that person's salary percentage must be increased so that he gets the amount of salary as he used to receive before?

**[WBP Constable Exam 2018]**

**Sol:** Let's learn a new concept.

The decrease in  $n/(n + d)$  is negated by an  $n/d$  increase in the quantity.

Here, 20% decrease =  $1/5$  decrease

So,  $n = 1$  and  $d = 4$ .

Hence, it can be negated by  $n/d = 1/4$  in increase or 25% increase. **(Ans.)**

**E.g.** When a number is first increased by 10% and then reduced by 10%, the number \_\_\_\_\_. **[WBP Constable Exam 2016]**

1. Decrease by 1%
2. Does not change
3. Increase by 1%
4. Increase by 9%

**Sol:** Let the number be 100.

First it increase by 10%, it will become 110

Then it reduced by 10% i.e 110 - 10% of 110

$$\Rightarrow 110 - 11 = 99$$

$$\Rightarrow \% \text{ decrease} = 1 \times 100/100 = 1\%.$$

Hence, option 1 is correct. **(Ans.)**

**E.g.** If 35% of a number is 91, what is the number? **[WBP Constable Exam 2019]**

**Sol:** Let the number be  $x$ .

$$\Rightarrow 35\% \text{ of } x = 91$$

$$\Rightarrow 35x/100 = 91$$



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$\Rightarrow x = 260$  (Ans.)

**E.g.** If 90% of A = 30% of B and B = 2x% of A, then x = ? [WBP Constable Exam 2019]

**Sol:** Given, 90% of A = 30% of B

$$\Rightarrow 9A = 3B \Rightarrow 3A = B$$

Also, B = 2x% of A

$$\Rightarrow 3A = 2x\% \text{ of A}$$

$$\Rightarrow 3 = 2x/100$$

$\Rightarrow x = 150$  (Ans.)

We did different types of questions related to percentage which could be asked in your WBP Constable Exam. We tried our best to collect all the important concepts within this blog of percentage. We require accuracy with speed in such competitive exams especially in the quant section so keep practicing. We will be here to guide you on your journey towards the WBP Constable Exam.

In our next blog, we will discuss the **Profit and Loss** Concept for WBP Constable Exam. Stay Tuned!