

# PERCENTAGE



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Fraction	Percentage	Percentage (in decimal)
1	100%	100%
$\frac{1}{2}$	50%	50%
$\frac{1}{3}$	$33\frac{1}{3}\%$	33.33%
$\frac{1}{4}$	25%	25%
$\frac{1}{5}$	20%	20%
$\frac{1}{6}$	$16\frac{2}{3}\%$	16.66%
$\frac{1}{7}$	$14\frac{2}{7}\%$	14.28%
$\frac{1}{8}$	$12\frac{1}{2}\%$	12.50%
$\frac{1}{9}$	$11\frac{1}{9}\%$	11.11%

Fraction	Percentage	Percentage (in decimal)
$\frac{1}{10}$	10%	10%
$\frac{1}{11}$	$9\frac{1}{11}\%$	9.09%
$\frac{1}{12}$	$8\frac{1}{3}\%$	8.33%
$\frac{1}{13}$	$7\frac{9}{13}\%$	7.69%
$\frac{1}{14}$	$7\frac{1}{7}\%$	7.14%
$\frac{1}{15}$	$6\frac{2}{3}\%$	6.66%
$\frac{1}{16}$	$6\frac{1}{4}\%$	6.25%
$\frac{1}{17}$	$5\frac{15}{17}\%$	5.88%
$\frac{1}{18}$	$5\frac{5}{9}\%$	5.55%

Fraction	Percentage	Percentage (in decimal)
$\frac{1}{19}$	$5\frac{5}{19}\%$	5.26%
$\frac{1}{20}$	5%	5%
$\frac{1}{21}$	$4\frac{16}{21}\%$	4.74%
$\frac{1}{22}$	$4\frac{6}{11}\%$	4.5454%
$\frac{1}{23}$	$4\frac{8}{23}\%$	4.34%
$\frac{1}{24}$	$4\frac{1}{6}\%$	4.16%
$\frac{1}{25}$	4%	4%
$\frac{2}{3}$	$66\frac{2}{3}\%$	66.67%
$\frac{2}{5}$	40%	40%

Fraction	Percentage	Percentage (in decimal)
$\frac{3}{4}$	75%	75%
$\frac{3}{5}$	60%	60%
$\frac{3}{8}$	$37\frac{1}{2}\%$	37.50%
$\frac{4}{5}$	80%	80%
$\frac{4}{3}$	$133\frac{1}{3}\%$	133.33%
$\frac{5}{4}$	125%	125%
$\frac{5}{6}$	$83\frac{1}{3}\%$	83.33%
$\frac{5}{8}$	$62\frac{1}{2}\%$	62.50%
$\frac{7}{8}$	$87\frac{1}{2}\%$	87.50%

## CONVERSION OF A FRACTION / DECIMAL INTO A PERCENT

To convert a fraction/decimal into a percentage, simply multiply the value by 100.

For example,  $\frac{1}{3}$  can be expressed in percentage terms as and the decimal 0.2 can be expressed as a percentage as  $0.2 \times 100 = 20\%$

## CONVERSION OF A PERCENTAGE INTO A FRACTION

A percentage when divided by 100 is converted into a fraction/decimal. For example 20% as a fraction is

The % sign is dropped when we divide the percentage by 100. So, % =

## PERCENT OF A NUMBER

To find the percent of a number, convert the percent into fraction and multiply the resultant fraction with the number.

For example, P% of a number N is =

### PRODUCT CONSISTENCY METHOD

Consider an equation where expenditure is calculated as product of price and quantity.

$$\text{Expenditure (E)} = \text{Price (P)} \times \text{Quantity (Q)}$$

For example, if price gets doubled then quantity should be half to keep the expenditure constant.

Hence, we can say if product of two quantities is constant, then change in one is compensated by another quantity.

	Price	Quantity	Expenditure
Initial	4	5	$4 \times 5 = 20$
Final	5	4	$5 \times 4 = 20$

Q: 3 is what % of 4?

Q: 7.5 is what % of 5?

Q: 26 is how much % less than 30?

Q:  $1\frac{1}{2}$  is how much % more than  $1\frac{1}{3}$ ?

## Percentage

Q 1.  $12\frac{1}{2}$  is what per cent of  $16\frac{2}{3}$  ?

- (1) 50%
- (2) 25%
- (3) 75%
- (4) 45%
- (5) None of these



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## Percentage

Q 1.  $12\frac{1}{2}$  is what per cent of  $16\frac{2}{3}$  ?

(1) 50%

(2) 25%

**(3) 75%**

(4) 45%

(5) None of these



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## Percentage

**Q 2. If the price of one kg. of rice is increased by 25%, the increase is 12 Rs .  
Find the new price of rice per kg.**

- (1) 48**
- (2) 60**
- (3) 72**
- (4) 36**
- (5) None of these**



## Percentage

**Q 2. If the price of one kg. of rice is increased by 25%, the increase is 12 Rs .  
Find the new price of rice per kg.**

- (1) 48**
- (2) 60**
- (3) 72**
- (4) 36**
- (5) None of these**



## Percentage

**Q 3. Due to fall in manpower, the production in a factory decreases by 20%. By what per cent should the working hour be increased to restore the original production?**

- (1) 24%**
- (2) 25%**
- (3) 20%**
- (4) 35%**
- (5) None of these**

## Percentage

**Q 3. Due to fall in manpower, the production in a factory decreases by 20%. By what per cent should the working hour be increased to restore the original production?**

- (1) 24%
- (2) 25%**
- (3) 20%
- (4) 35%
- (5) None of these

## Percentage

**Q 4. If the duty on imported sugar be increased by 25 percent. By how much percent must a man reduce his consumption of that article so as not to increase his expenditure?**

- (1) 20%**
- (2) 25%**
- (3) 16%**
- (4) 10%**
- (5) None of these**

## Percentage

**Q 4. If the duty on imported sugar be increased by 25 percent. By how much percent must a man reduce his consumption of that article so as not to increase his expenditure?**

- (1) 20%**
- (2) 25%**
- (3) 16%**
- (4) 10%**
- (5) None of these**

## Percentage

**Q 5. If the price of sugar falls down by 20%, by how much per cent must a householder increase its consumption, so as not to decrease expenditure in this item?**

- (1) 25%**
- (2) 20%**
- (3) 30%**
- (4) 15%**
- (5) None of these**



## Percentage

**Q 5. If the price of sugar falls down by 20%, by how much per cent must a householder increase its consumption, so as not to decrease expenditure in this item?**

- (1) 25%**
- (2) 20%**
- (3) 30%**
- (4) 15%**
- (5) None of these**

## Percentage

**Q 6. If A's salary is 20% more than that of B, then how much per cent is B's salary less than that of A?**

- (1)  $16\frac{2}{3}\%$**
- (2) 20%**
- (3) 40%**
- (4) 10%**
- (5) None of these**



## Percentage

Q 6. If A's salary is 20% more than that of B, then how much per cent is B's salary less than that of A?

- (1)  $16\frac{2}{3}\%$
- (2) 20%
- (3) 40%
- (4) 10%
- (5) None of these



## Percentage

**Q 7. A shopkeeper marks the prices of his goods at 26% higher than the original price. Due to the increase in demand, he again increases by 26%. What profit (in percent) did he get?**

- (1) 52%**
- (2) 58%**
- (3) 60%**
- (4) 58.76%**
- (5) None of these**

## Percentage

**Q 7. A shopkeeper marks the prices of his goods at 26% higher than the original price. Due to the increase in demand, he again increases by 26%. What profit (in percent) did he get?**

- (1) 52%**
- (2) 58%**
- (3) 60%**
- (4) 58.76%**
- (5) None of these**

## Percentage

**Q 8. The tax on commodity is diminished by 15% and its consumption increases by 10%. Find the effect on revenue.**

- (1) decrease of 6%**
- (2) decrease of 5%**
- (3) increase of 6.5%**
- (4) decrease of 6.5%**
- (5) None of these**

## Percentage

Q 8. The tax on commodity is diminished by 15% and its consumption increases by 10%. Find the effect on revenue.

- (1) decrease of 6%
- (2) decrease of 5%
- (3) increase of 6.5%
- (4) decrease of 6.5%**
- (5) None of these

## Percentage

**Q 9. In measuring the sides of a rectangle, one side is taken 10% in excess and the other 20% in deficit. Find the error per cent in area calculated from the measurement.**

- (1) 8% excess**
- (2) 8% deficit**
- (3) 12% excess**
- (4) 12% deficit**
- (5) None of these**



## Percentage

**Q 9. In measuring the sides of a rectangle, one side is taken 10% in excess and the other 20% in deficit. Find the error per cent in area calculated from the measurement.**

- (1) 8% excess**
- (2) 8% deficit**
- (3) 12% excess**
- (4) 12% deficit**
- (5) None of these**

## Percentage

**Q 10. Find a single discount equivalent to a discount series of 10%, 15% and 20%.**

- (1) 45%**
- (2) 38.8%**
- (3) 43.8%**
- (4) 39.8%**
- (5) None of these**



## Percentage

Q 10. Find a single discount equivalent to a discount series of 10%, 15% and 20%.

(1) 45%

**(2) 38.8%**

(3) 43.8%

(4) 39.8%

(5) None of these



## Percentage

**Q 11. The price of wheat is decreased by 25% and its consumption increases by 25%. Find the new expenditure as a ratio of initial expenditure.**

- (1) 3 : 4**
- (2) 5 : 4**
- (3) 16 : 15**
- (4) 15 : 16**
- (5) None of these**

## Percentage

**Q 11. The price of wheat is decreased by 25% and its consumption increases by 25%. Find the new expenditure as a ratio of initial expenditure.**

- (1) 3 : 4
- (2) 5 : 4
- (3) 16 : 15
- (4) 15 : 16**
- (5) None of these

## Percentage

**Q 12. In a recent survey 40% houses contained two or more people. Of those houses containing only one person 25% were having only a male. What is the percentage of all houses which contain exactly one female and no males?**

- (1) 75**
- (2) 40**
- (3) 15**
- (4) 45**
- (5) None of these**

## Percentage

**Q 12. In a recent survey 40% houses contained two or more people. Of those houses containing only one person 25% were having only a male. What is the percentage of all houses which contain exactly one female and no males?**

- (1) 75**
- (2) 40**
- (3) 15**
- (4) 45**
- (5) None of these**

## Percentage

**Q 13.** The population of a town is 8000. If the males increase by 9% and the females by 16%, the population will be 9000. Find the number of females in the town.

- (1) 2000**
- (2) 4500**
- (3) 3000**
- (4) 4000**
- (5) None of these**



## Percentage

Q 13. The population of a town is 8000. If the males increase by 9% and the females by 16%, the population will be 9000. Find the number of females in the town.

- (1) 2000
- (2) 4500
- (3) 3000
- (4) 4000**
- (5) None of these

## Percentage

**Q 14. A student has to secure 15% marks to get through. If he gets 80 marks and fails by 70 marks, find the maximum marks set for the examination.**

- (1) 100**
- (2) 1000**
- (3) 1500**
- (4) 900**
- (5) None of these**

## Percentage

Q 14. A student has to secure 15% marks to get through. If he gets 80 marks and fails by 70 marks, find the maximum marks set for the examination.

- (1) 100
- (2) 1000**
- (3) 1500
- (4) 900
- (5) None of these

## Percentage

**Q 15. A candidate scores 35% and fails by 40 marks, while another candidate who scores 60% marks, gets 35 marks more than the minimum required marks to pass the examination. Find the maximum marks for the examination.**

- (1) 300**
- (2) 200**
- (3) 350**
- (4) 450**
- (5) None of these**

## Percentage

**Q 15. A candidate scores 35% and fails by 40 marks, while another candidate who scores 60% marks, gets 35 marks more than the minimum required marks to pass the examination. Find the maximum marks for the examination.**

- (1) 300**
- (2) 200**
- (3) 350**
- (4) 450**
- (5) None of these**

## Percentage

**Q 16.** In a certain year, the population of a certain town was 9000. If the next year the population of males increases by 5% and that of the females by 8% and the total population increases to 9600, then what was the ratio of population of males and females in that given year?

- (1) 4 : 5**
- (2) 5 : 4**
- (3) 2 : 3**
- (4) Data inadequate**
- (5) None of these**

## Percentage

**Q 16.** In a certain year, the population of a certain town was 9000. If the next year the population of males increases by 5% and that of the females by 8% and the total population increases to 9600, then what was the ratio of population of males and females in that given year?

- (1) 4 : 5**
- (2) 5 : 4**
- (3) 2 : 3**
- (4) Data inadequate**
- (5) None of these**

## Percentage

**Q 17. The population of a town is 64000. It increases by 10% during the first year. During the second year, it decreases by 25% and increased by 5% during the third year. What is the population after 3 years?**

- (1) 654400**
- (2) 56440**
- (3) 55450**
- (4) 55440**
- (5) None of these**



## Percentage

**Q 17. The population of a town is 64000. It increases by 10% during the first year. During the second year, it decreases by 25% and increased by 5% during the third year. What is the population after 3 years?**

- (1) 654400**
- (2) 56440**
- (3) 55450**
- (4) 55440**
- (5) None of these**

## Percentage

**Q 18. In an examination, 10% of the students failed in Maths, 20% failed in English and 5% failed in both. Find the percentage of students who passed in both the subjects.**

- (1) 75%**
- (2) 70%**
- (3) 85%**
- (4) 80%**
- (5) None of these**

## Percentage

**Q 18. In an examination, 10% of the students failed in Maths, 20% failed in English and 5% failed in both. Find the percentage of students who passed in both the subjects.**

- (1) 75%**
- (2) 70%**
- (3) 85%**
- (4) 80%**
- (5) None of these**

## Percentage

**Q 19. A man spends 60% of his income. His income increases by 15% and his expenditure also increases by 5%. Find the percentage increase in his savings.**

- (1) 30%**
- (2) 15%**
- (3) 20%**
- (4) 25%**
- (5) None of these**

## Percentage

**Q 19. A man spends 60% of his income. His income increases by 15% and his expenditure also increases by 5%. Find the percentage increase in his savings.**

- (1) 30%**
- (2) 15%**
- (3) 20%**
- (4) 25%**
- (5) None of these**

## Percentage

**Q 20. A solution of salt and water contains 5% salt by weight. Of it 20 kg water evaporates and the solution now contains 15% of salt. Find the original quantity of solution.**

- (1) 15 kg.**
- (2) 30 kg.**
- (3) 18 kg.**
- (4) 24 kg.**
- (5) None of these**

## Percentage

**Q 20. A solution of salt and water contains 5% salt by weight. Of it 20 kg water evaporates and the solution now contains 15% of salt. Find the original quantity of solution.**

- (1) 15 kg.
- (2) 30 kg.**
- (3) 18 kg.
- (4) 24 kg.
- (5) None of these

## Percentage

**Q 21. What quantity of water should be added to reduce 16 litres of 25% acidic liquid to 20% acidic liquid?**

- (1) 5 litres**
- (2) 4 litres**
- (3) 12 litres**
- (4) 8 litres**
- (5) None of these**





## Percentage

**Q 21. What quantity of water should be added to reduce 16 litres of 25% acidic liquid to 20% acidic liquid?**

- (1) 5 litres**
- (2) 4 litres**
- (3) 12 litres**
- (4) 8 litres**
- (5) None of these**



## Percentage

**Q 22. What quantity of water should be taken out to concentrate 21 litres of 25% acidic liquid to 35% acidic liquid.**

- (1) 6 litres**
- (2) 8.4 litres**
- (3) 6.4 litres**
- (4) 8 litres**
- (5) None of these**



## Percentage

**Q 22. What quantity of water should be taken out to concentrate 21 litres of 25% acidic liquid to 35% acidic liquid.**

- (1) 6 litres**
- (2) 8.4 litres**
- (3) 6.4 litres**
- (4) 8 litres**
- (5) None of these**



## Percentage

**Q 23.** In an examination the percentage of students qualified to the number of students appeared from school 'A' is 80%. In school 'B' the number of students appeared is 25% more than the students appeared from school 'A' and the number of students qualified from school 'B' is 40% more than the students qualified from school 'A'. What is the percentage of students qualified to the number of students appeared from school 'B'?

- (1) 45%
- (2) 90%
- (3) 89.5%
- (4) 89.6%
- (5) None of these

## Percentage

**Q 23.** In an examination the percentage of students qualified to the number of students appeared from school 'A' is 80%. In school 'B' the number of students appeared is 25% more than the students appeared from school 'A' and the number of students qualified from school 'B' is 40% more than the students qualified from school 'A'. What is the percentage of students qualified to the number of students appeared from school 'B'?

- (1) 45%
- (2) 90%
- (3) 89.5%
- (4) 89.6%**
- (5) None of these

## Percentage

**Q 24. Rice is now being sold at Rs. 20 per kg. During last month its cost was 18 per kg. Find by how much percent a family should reduce its consumption, so as to keep the expenditure the same.**

- (1) 10%**
- (2) 20%**
- (3) 15%**
- (4) 5%**
- (5) None of these**

## Percentage

**Q 24.** Rice is now being sold at Rs. 20 per kg. During last month its cost was 18 per kg. Find by how much percent a family should reduce its consumption, so as to keep the expenditure the same.

- (1) 10%**
- (2) 20%**
- (3) 15%**
- (4) 5%**
- (5) None of these**

## Percentage

**Q 25. A reduction of 2 per kg enables a man to purchase 2 kg more tea for 8. Find the original price of tea per kg.**

- (1) 4 per kg.**
- (2) 6 per kg.**
- (3) 2 per kg.**
- (4) 3 per kg.**
- (5) None of these**



## Percentage

Q 25. A reduction of 2 per kg enables a man to purchase 2 kg more tea for 8.  
Find the original price of tea per kg.

- (1) 4 per kg.
- (2) 6 per kg.
- (3) 2 per kg.
- (4) 3 per kg.
- (5) None of these

## Percentage

**Q 26. A reduction of 20 percent in the price of tea would enable a purchaser to obtain 4 kg. more for 100, what is the reduced price, and original price?**

- (1) 6.25, 5**
- (2) 5, 6.25**
- (3) 6, 5.25**
- (4) 5.25, 6**
- (5) None of these**

## Percentage

Q 26. A reduction of 20 percent in the price of tea would enable a purchaser to obtain 4 kg. more for 100, what is the reduced price, and original price?

- (1) 6.25, 5
- (2) 5, 6.25**
- (3) 6, 5.25
- (4) 5.25, 6
- (5) None of these

## Percentage

**Q 27. The population of a town is 15625. It increases 8 per cent annually. What will it be in 3 years?**

- (1) 16983**
- (2) 18693**
- (3) 19683**
- (4) 19638**
- (5) None of these**



## Percentage

Q 27. The population of a town is 15625. It increases 8 per cent annually. What will it be in 3 years?

- (1) 16983
- (2) 18693
- (3) 19683**
- (4) 19638
- (5) None of these



## Percentage

**Q 28. A man deposited 30% of the initial amount to his locker. And again, after some time he deposited 25% of the increased amount. Now the amount becomes 13,000. How much was the initial amount?**

- (1) 8000**
- (2) 10000**
- (3) 12000**
- (4) 9000**
- (5) None of these**

## Percentage

**Q 28. A man deposited 30% of the initial amount to his locker. And again, after some time he deposited 25% of the increased amount. Now the amount becomes 13,000. How much was the initial amount?**

- (1) 8000**
- (2) 10000**
- (3) 12000**
- (4) 9000**
- (5) None of these**

## Percentage

**Q 29. Two numbers are respectively 26% and 5% more than a third. What percentage is the first of the second?**

- (1) 120%**
- (2) 100%**
- (3) 80%**
- (4) 125%**
- (5) None of these**





## Percentage

**Q 29. Two numbers are respectively 26% and 5% more than a third. What percentage is the first of the second?**

- (1) 120%**
- (2) 100%**
- (3) 80%**
- (4) 125%**
- (5) None of these**



## Percentage

**Q 30. When the price of rice was increased by 32%, a family reduced its consumption in such a way that the expenditure on rice was only 10% more than before. If 30 kg were consumed per month before, find the new monthly consumption.**

- (1) 25 kg**
- (2) 24 kg**
- (3) 20 kg**
- (4) 18 kg**
- (5) None of these**

## Percentage

**Q 30.** When the price of rice was increased by 32%, a family reduced its consumption in such a way that the expenditure on rice was only 10% more than before. If 30 kg were consumed per month before, find the new monthly consumption.

- (1) 25 kg**
- (2) 24 kg**
- (3) 20 kg**
- (4) 18 kg**
- (5) None of these**

## Percentage

**Q 31. Two candidate participated in an election. 10% voter did not cast their votes and 10% votes were declared invalid. A candidate got 60% of total votes and won the election by 3900 votes. Find the total number of voters in voter list.**

- (a) 8100**
- (b) 10000**
- (c) 19500**
- (d) 9000**

## Percentage

**Q 31.** Two candidate participated in an election. 10% voter did not cast their votes and 10% votes were declared invalid. A candidate got 60% of total votes and won the election by 3900 votes. Find the total number of voters in voter list.

- (a) 8100
- (b) 10000**
- (c) 19500
- (d) 9000

## Percentage

**Q 32. Two candidates participated in an election. 20% voters did not cast their votes and 2000 votes were declared invalid. Winner candidate got 60% of valid votes and got elected by 1200 number of votes. Find the total number of votes in voter list.**

- (a) 8750**
- (b) 7750**
- (c) 8000**
- (d) 10000**

## Percentage

**Q 32. Two candidates participated in an election. 20% voters did not cast their votes and 2000 votes were declared invalid. Winner candidate got 60% of valid votes and got elected by 1200 number of votes. Find the total number of votes in voter list.**

- (a) 8750**
- (b) 7750**
- (c) 8000**
- (d) 10000**

## Percentage

**Q 33.** In an election two candidates participated A and B. A secured 30% of the total votes and lost the election by 500 votes. Find the total number of votes casted.

- (a) 1050
- (b) 1100
- (c) 1250
- (d) 1200



## Percentage

**Q 33.** In an election two candidates participated A and B. A secured 30% of the total votes and lost the election by 500 votes. Find the total number of votes casted.

- (a) 1050
- (b) 1100
- (c) 1250**
- (d) 1200

## Percentage

**Q 34. A company give 12% commission to his salesman on total sales and 1% bonus on the sales over ₹ 15000. If the salesman deposit ₹7650 after deducting his commission from total sales. Find total sales.**

- (a) 72000**
- (b) 70000**
- (c) 48000**
- (d) 60000**

## Percentage

**Q 34. A company give 12% commission to his salesman on total sales and 1% bonus on the sales over ₹ 15000. If the salesman deposit ₹52,350 after deducting his commission from total sales. Find total sales.**

- (a) 72000**
- (b) 70000**
- (c) 48000**
- (d) 60000**

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# THANK YOU



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