# **Percentage**

## Express percentage as fraction:

"x%" can be expressed as fraction which= x/100 to explain, 40%= 40/100= 2/5

Q1. Convert the following Percentage into fraction

- 1. 25%
- 2. 33.33...%
- 3. 87.5%
- 4. 9.0909.....%
- 5. 11.11.....%

## Express percentage as decimal:

We know, 2%= 21001002 to get it decimal form we have to divide 2 by 100, i.e  $\Rightarrow 2\%$ = 2/100 =0.02

Q2. Express following Percentage as decimal

- 1. 66.66...%
- 2. 125%
- 3. 60%
- 4.  $2\frac{3}{10}\%$
- 5.  $\frac{8}{5}$  %

### Convert fraction into percentage:

Let a/b be a fraction, to convert it into percentage we multiply it by 100 . =( a/b ×100 )%

## example,

percentage value of 1/4 will be  $\Rightarrow (1/4 \times 100)\% = 25\%$ 

Q3. Convert the following fractions into percentage

1.  $\frac{1}{2}$ 2.  $\frac{3}{5}$ 3.  $\frac{2}{3}$ 4.  $2\frac{2}{6}$ 5.  $\frac{2}{7}$ 

### Convert decimal into percentage:

In order to convert a decimal number into percentage, we multiply the decimal number with 100.

 $\rightarrow$ 1.5 can be in percentage as,

= 1.5× 100 =1.5× 100% = 150%

- Q4. Convert the following decimals into a percentage:
  - 1. 1.75
  - 2. 0.25
  - 3. 0.04
  - 4. 0.33333...
  - 5. 0.0001

#### Some important tricks for percentage:

- 1. If a is increased to b', then percentage increase
  - Percentage increase%=(b-a)/ax 100%
- 2. When a is decreased to a to b then,
  - Percentage decrease%= (a-b)/a x 100%
- If amount is first increase by x% and then decreased by x%. The percentage change will be

Decrease of X<sup>2</sup>/100%

 If amount is first increase by x% and then decreased by y%. The percentage change will be

Net Percent Change= (x-y-xy/100)% [ – sign for decrease and +sign for increase]

#### Comparison between two quantities:

- If A is x% more than B, Then B is less than A by
- I. {(x/100+x) x 100}%
- If A is x% less than B, Then B is more than A by
  I. {(x/100-x) x 100}%

### Price of commodity (for no change in expenditure)

- If the price of commodity is increase by x% then reduction in consumption is {(x/100+x) x 100}%
- If the price of commodity is decrease by x% then increase in comsumption is
- {(x/100-x) x 100}%
- Q5. 1.  $\frac{2}{3}$  is what percent of  $\frac{1}{3}$ 
  - 2. 45 increased BY 33% is x. Find x.
  - 3. 64 reduced by 66% is x. Find x.
  - 4. 25% of 50% of 800% of x is 100. Find x.

Q6. 25% of a number is 20 less than 22% of the number. Find the number.

Q7. 25% of a number is forty-five more than one-tenth of the number. Find 33% of the number.

Q8. 33% of the number when subtracted from 180 gives the number itself. Find the number.

Q9. A is 20% more than B and B is 20% less than C, then by what percent C is more than A?

Q10. 15% of A is 25% of B. B is what percent less than A? A is what percent more than B?

Q11. A:B = 4:5, By what percent A is less than B?

Q12. A student multiplied a number by 3/5 instead of 5/3. What is the percentage error in the calculation?

Q13. If the numerator of a fraction is increased by 150% and denominator of a fraction increased by 350%, the resultant fraction is 25/51. What is the original fraction?

Q14. A 550 litre of milk and water contains 75% of milk, How much more water should be added to get a mixture of 60% milk?

Q15. X% of Y + Y%ofX is

- 1.) 3% of xy
- 2.) 2 % of xy
- 3.) 5% of xy
- 4.) None of these

Q16. In a school, there are 55% boys and 35% girls and rest are staff and teachers. One-fifth of the staff left the school and number of staff left is 80. Find the number of girls in the school.

Q17. A batsman Scored 110 runs which included 4 boundaries and 9 sixes. What percent of his total runs did he made by running between the wickets?

Q18. Two students appeared at an examination. One of them scored nine marks more than other and his marks are 56% of the sum of their marks. What are the marks obtained by them?

Q19. Two numbers A and B are such that the sum of 5% of A and 4% of B is two third of the sum of 6% of A and \*% of B. Find the ratio of A: B

Q20. A student has to obtain 33% of the total marks to pass. He got 127 marks and failed by 33 marks. What is the maximum mark of the exam?

Q21. Entry fee in the exhibition is Rs. 60. Later, this was reduced by 25% which increased the sale by 20%. What is the percent increase in the number of visitor?

Q22. If the price of gold increases by 30%, find by how much the quantity of ornaments be reduced so that the expenditure may remain the the same as before?

A23. The price of the rice falls by 20%. How much rice can be brought now with the money that was sufficient to buy 20 kg of rice?

Q24. The length of a rectangle is increased by 25%. By how much percent the breadth be reduced so that the area remains the constant?

Q25. The length, breadth and height of a room are increased by 20%, 20% and 50% respectively. Find the percentage change in the volume of the room.

Q26. In an election, Amit received 65% of the votes and won by 2460 votes. Find the total number of the vote casted.

Q27. 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, What is the number of valid votes that other candidate got?

Q28. The population of the town increased from 1,75,000 to 2,65,000 in a decade. What is the average percentage increase in the population.

#### **Profit and Loss**

- 1. Cost Price (CP) This is the price at which an article is purchased.
- 2. Selling Price (SP) This is the price at which an article is sold.
- 3. Profit or Gain If the selling price is more than the cost price, the difference between them is the profit incurred.
- 4. Profit or Gain = Selling price (SP) Cost price (CP)
- 5. Loss If the selling price is less than the cost price, the difference between them is the loss incurred.
- 6. Loss = Cost price (CP) Selling price (SP)
- 7. Gain on Rs. 100 is Gain Percent
- 8. Gain% = (Gain \* 100)/CP
- 9. Loss on Rs. 100 is Loss Percent
- 10. Loss% = (Loss \* 100)/CP
- 11. Profit or Loss is always calculated on the cost price.
- 12. Marked Price This is the price marked as the selling price on an article, also known as the listed price.
- 13. Discount or Rebate This is the reduction in price offered on the marked or listed price.
- 14. If an article is sold at a gain of 10%, then SP = 110% of CP.
- 15. If an article is sold at a loss of 10%, then SP = 90% of CP.

#### **Questions:**

Q1. Complete the Following Table:

Q2. John buys an old scooter for Rs. 4700Rs and spends Rs. 800Rs on its repairs. If he sells the scooter for Rs. 5800, what is his gain percent?

Q3. A vendor bought bananas at 6 for a rupee. How many for a rupee must he sell to gain 20%?

Q4. The cost price of 20 articles is the same as the selling price of x articles. If the profit is 25%, find the value of x

Q5. By selling 33 meters of cloth, one gains the selling price of 11 meters. Find the gain percent.Q6. If selling price is doubled, the profit triples. Find the profit percent.

Q7. On selling 17 balls at Rs. 720, there is a loss equal to the cost price of 5 balls. What is the cost price of a ball?

Q8. Alfred buys an old scooter for Rs. 4700 and spends Rs. 800 on its repairs. If he sells the scooter for Rs. 5800, his gain percent is:

Q9. The owner of an electronics shop charges his customer 22% more than the cost price. If a customer paid Rs 10,980 for a DVD player, then what was the cost price of the DVD player?

Q10. David purchased a house for Rs.75000 and a site for Rs.15000 respectively, if he sold the house for Rs.83000 and the site for Rs.10000, then find the resultant percentage of gain?

Q11. The percentage profit earned by selling an article for Rs. 1920 is equal to the percentage loss incurred by selling the same article for Rs. 1280. At what price should the article be sold to make 25% profit?

Q12. Some articles were bought at 6 articles for Rs. 5 and sold at 5 articles for Rs. 6. What is gain percent?

Q13. A trader mixes 26 kg of rice at Rs. 20 per kg with 30 kg of rice of other variety at Rs. 36 per kg and sells the mixture at Rs. 30 per kg. His profit percent is:

Q14. A trader sells his goods for Rs 1081.20 after allowing a discount of 15% on list price and charging a GST of 6% on discounted price. Find the list price of the commodity.

Q15. An article is sold at 25% profit. If the CP and the SP of the article are increased by Rs 60 and Rs 30 respectively, the profit% decreases by 15%. Find the cost price of the article.

Q16. Rajesh earns a profit of 30% in one deal but incurs a loss of 30% in the second while selling 2 cycles for Rs. 4000 each. Find his total profit or loss in both the deals together? Q17. After allowing a discount of 10%, a shopkeeper sold the shirt for Rs. 3600. If he earns a profit of 20%, find the cost price and Mark Price.

Q18. A trader marks his car at 30% more and gave a discount of 10%. If the cost of car is is Rs. 200000, find his profit percent.

Q19. Ramesh sold his car for Rs. 100000 at a loss of 33%. He invested the amount received, to buy 2000 shirts and sold the whole lot for Rs.850 each. Calculate the overall profit/Loss.

Q20. After allowing a discount of 10%, a trader earns 17% profit. If he increases his mark price by 20% and keeps the discount same, find the new profit percent.

