

## Chapter 2. Sales Tax and Value Added Tax

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### Formulae

Sales Tax (Trade Tax) :

1. Sales Tax is calculated on the Sale Price.

$$2. \text{ Sales Tax} = \frac{\text{Rate of Sales Tax} \times \text{Sale Price}}{100}$$

$$3. \text{ Rate of Sales Tax} = \frac{\text{Sales Tax}}{\text{Sale Price}} \times 100\%$$

The amount of money paid by a customer for an article = The sale price of the article + Sales Tax on it, if any.

**VAT (Value Added Tax):**

1. Unlike sales tax, VAT is also collected by the state government.
2. It is not in addition to the existing Sales Tax, but is the replacement of Sales Tax. Presently, a majority of state governments have accepted the VAT system.
3. It is tax on the value added at each transfer of goods, from the original manufacturer to the retailer.

Assuming that the rate of tax is 10% and a trader purchases an article for Rs. 800, the tax he pays = 10% Rs. 800 = Rs. 80.

Now, if he sells the same article for Rs. 1,150.

The tax he recovers (gets) = 10% of Rs. 1,150 = 115

$\therefore$  VAT = Tax recovered on the sale – Tax he paid on the purchase  
= Rs. 115 – Rs. 80 = 35.

4. The difference of tax recovered on the sale value and paid on the purchase value is deposited with the government as VAT.

### Formulae Based Questions

**Question 1.** Sheela bought a V.C.R., at the list price of Rs. 13,500. If the rate of sale tax was 8%. Find the amount she had to pay for it.

**Solution :** List price of V.C.R. = ₹ 13,500

$$\begin{aligned} \text{Sales tax} &= ₹ 13,500 \times \frac{8}{100} \\ &= ₹ 1,080 \end{aligned}$$

Selling price of V.C.R. = ₹ 13,500 + ₹ 1080

$$= ₹ 14,580. \quad \text{Ans.}$$

**Question 2.** Rani purchases a pair of shoe whose sale price is Rs. 175. If she pays sales tax at the rate of 7%, how much amount does she pay as sales tax? Also find the net values of the pair of shoe.

Solution : Sale price of shoes = ₹ 175

$$\text{Sales tax} = \frac{\text{₹ } 175 \times 7}{100} = \text{₹ } 12.25$$

So, paid sale tax = ₹ 12.25

Net values of pair of shoe

$$= \text{₹ } 175 + \text{₹ } 12.25$$

$$= \text{₹ } 187.25.$$

**Question 3.** Sunita purchases a bicycle for Rs. 660. She has paid a sale tax of 10%. Find the list price of the bicycle.

Solution : Let ₹  $x$  be the list price of bicycle.

$$\text{Sale tax} = x \times \frac{10}{100} = \frac{x}{10}$$

Then  $x + \frac{x}{10} = 660$

$$\Rightarrow \frac{11x}{10} = 660$$

$$\Rightarrow x = \frac{660 \times 10}{11}$$

$$\Rightarrow x = \text{₹ } 600. \quad \text{Ans.}$$

**Question 4.** The price of a washing machine, inclusive of sales tax i, Rs. 13,530. If the sales tax is 10% find its list (or basic) price.

Solution : Let the list price of the washing machine be ₹  $x$  then.

$$\text{Amount of sales tax} = \text{₹ } \left( \frac{x \times 10}{100} \right) = \text{₹ } \frac{x}{10}$$

$$\therefore \text{Selling price of washing machine} = x + \frac{x}{10}$$

$$\Rightarrow 13,530 = x + \frac{x}{10}$$

$$\Rightarrow \frac{11x}{10} = 13,530$$

$$\Rightarrow x = \text{₹ } 12,300.$$

$\therefore$  List price of the washing machine be ₹ 12,300. Ans.

**Question 5.** Savita purchased an almirah for Rs. 4536 including sale tax. If the list price of the almirah is Rs. 4,200, find the rate of sale tax charged.

Solution : Cost of almirah (including sale tax)

$$= ₹ 4,536$$

$$\text{List Price of almirah} = ₹ 4,200$$

$$\text{Sales tax} = ₹ 4,536 - ₹ 4,200$$

$$= ₹ 336$$

$$\text{Rate of Sales tax} = \frac{\text{Sales Tax}}{\text{List Price}} \times 100$$

$$= \frac{₹ 336}{₹ 4,200} \times 100$$

$$= 8\%$$

**Question 6.** The sale price of a television, inclusive of sales tax is Rs. 13,500. If sales tax is charged at the rate of 8% of the list price, find the list price of the television.

Solution : Sale Price of Television

$$= ₹ 13,500$$

$$\text{Rate of Sales Tax} = 8\%$$

$$\text{Let the List Price} = x$$

$$\text{Sales tax} = 8\% \text{ of } x = \frac{8}{100} \times x = \frac{2x}{25}$$

$$\text{Sales Price} = \text{List Price} + \text{Sales Tax}$$

$$13,500 = x + \frac{2x}{25}$$

$$13,500 = \frac{27x}{25}$$

$$x = \frac{13,500 \times 25}{27}$$

$$x = ₹ 12,500.$$

∴ The list price of the television be ₹ 12,500.

**Question 7.** The price of a washing machine inclusive of sale tax is Rs. 13,530. If the sale tax is 10% find its basic price.

Solution : Let its basic price be ₹  $x$

$$\text{Sales tax} = 10\% \text{ of } x = \frac{10x}{100}$$

∴ Price of the washing machine

$$= x + \frac{10x}{100}$$

$$= ₹ \frac{110x}{100}$$

$$\therefore \frac{110x}{100} = ₹ 13,530$$

$$\begin{aligned} \therefore x &= \frac{13,530 \times 100}{110} \\ &= ₹ 12,300. \end{aligned}$$

**Question 8.** A shopkeeper buys an article whose list price is Rs. 450 at some rate of discount from a wholesaler. He sells the article to a consumer at the list price and charges sales tax at the rate of 6%. If the shopkeeper has to pay a VAT of Rs. 2.70, find the rate of discount at which he bought the article from the wholesaler.

Solution : Let the amount of discount be ₹  $x$ .

As the shopkeeper sells the article at the list price, the profit of the shopkeeper = ₹  $x$ .

∴ The value of the article added by the shopkeeper = ₹  $x$ .

$$\Rightarrow 6\% \text{ of } ₹ x = ₹ 2.70$$

$$\Rightarrow \frac{6}{100} \times x = 2.70$$

$$\Rightarrow 6x = 270 \Rightarrow x = 45.$$

∴ The amount of discount

$$= ₹ 45$$

$$\begin{aligned} \therefore \text{Rate of discount} &= \left( \frac{45}{450} \times 100 \right) \% \\ &= 10\%. \end{aligned}$$

## Concept Based Questions

**Question 1.** Samir bought the following articles from a departmental store:

Item	Quantity	Rate per item (₹)	Rate of tax (Sale)
Shirts	4	200.00	8%
Pair of shoe	2	350.00	10%
Television	1	10900.00	10%
Tea set	1	750.00	8%

Calculate the total bill paid, including sales tax, by samir to the departmental store.

Solution : We have

$$\text{Cost price of 4 shirts} = ₹ 200 \times 4 = ₹ 800$$

$$\text{Sales tax} = ₹ 800 \times \frac{8}{100} = ₹ 64$$

Amount paid for 4 shirts

$$\begin{aligned} &= ₹ (800 + 64) \\ &= ₹ 864. \end{aligned}$$

Cost price of 2 pairs of shoe

$$\begin{aligned} &= ₹ (350 \times 2) \\ &= ₹ 700. \end{aligned}$$

$$\text{Sales tax} = ₹ 700 \times \frac{10}{100} = ₹ 70$$

So, amount paid for 2 pairs of shoe

$$\begin{aligned} &= ₹ (700 + 70) \\ &= ₹ 770. \end{aligned}$$

Cost price of T.V. = ₹ 10,900

$$\begin{aligned} \text{Sales tax} &= ₹ 10,900 \times \frac{10}{100} \\ &= ₹ 1,090 \end{aligned}$$

So, amount for T.V. set

$$\begin{aligned} &= ₹ (10,900 + 1,090) \\ &= ₹ 11,990 \end{aligned}$$

Cost price of tea set

$$= ₹ 750$$

$$\begin{aligned} \text{Sales tax} &= ₹ \left( 750 \times \frac{8}{100} \right) \\ &= ₹ 60 \end{aligned}$$

So, amount paid for tea set

$$\begin{aligned} &= ₹ (750 + 60) \\ &= ₹ 810 \end{aligned}$$

Hence, total amount of the bill

$$\begin{aligned} &= ₹ (864 + 770 + 11,990 + 810) \\ &= ₹ 14,434. \end{aligned}$$

**Question 2.** A shopkeeper bought a washing machine at a discount of 20% from a wholesaler, the printed price of the washing machine being Rs. 18,000. The shopkeeper sells it to a consumer at a discount of 10% on the printed price. If the rate of sales tax is 8%, find:

- (i) the VAT paid by the shopkeeper.  
(ii) the total amount that the consumer pays for the washing machine.

Solution : M.P. = ₹ 18,000  
Discount = 20% for shop-owner.  
Discount = 10% for consumer  
Sales tax = 8%

Discount for shop-owner  
= 20% of 18,000  
=  $\frac{20 \times 18000}{100} = ₹ 3600$

Cost for shop-owner = 18000 - 3600  
= ₹ 14400

Cost for consumer = 18000 - 10% of 18000  
= 18000 -  $\frac{10 \times 18000}{100}$   
= 18000 - 1800  
= ₹ 16,200

(i) Tax charged by the shopkeeper

$$= 16,200 \times \frac{8}{100}$$

$$= ₹ 1,296$$

Tax paid by the shopkeeper

$$= ₹ 14,400 \times \frac{8}{100}$$

$$= ₹ 1,152$$

∴ Vat paid by the shopkeeper

$$= ₹ 1,296 - ₹ 1,152$$

$$= ₹ 144 \quad \text{Ans.}$$

(ii) Amount paid by consumer

$$= ₹ (16,200 + 1,296)$$

$$= ₹ 17,496. \quad \text{Ans.}$$

**Question 3.** Find the tax paid by (i) the manufacturer, (ii) the whole saler, (iii) the retailer, (iv) the customer. If the rate of sales tax be 10%.

Solution : (i) Let the M.P. of the manufacturer be ₹ 100

S. P. of manufacturer

$$= ₹ 100 + 10\% \text{ of } ₹ 100$$

$$= 100 + 10$$

$$= ₹ 110$$

∴ Tax paid by manufacturer = ₹ 10.      Ans.

(ii) Let the M.P. of the wholesaler be ₹ 150

S.P. of wholesaler

$$= ₹ 150 + 10\% \text{ of } ₹ 150$$

$$= 150 + 15$$

$$= ₹ 165$$

VAT by wholesaler

$$= ₹ 150 - ₹ 100 = ₹ 50$$

∴ So tax paid by wholesaler

$$= 10\% \text{ of } ₹ 50$$

$$= ₹ 5$$

(iii) Let the M.P. of retailer be ₹ 200

$$\text{S.P. of retailer} = ₹ 200 + 10\% \text{ of } ₹ 200$$

$$= 200 + 20$$

$$= ₹ 220$$

$$\text{VAT by retailer} = ₹ 200 - 150$$

$$= ₹ 50$$

∴ So tax paid by retailer

$$= 10\% \text{ of } 50$$

$$= ₹ 5.$$

(iv) Tax received by government

$$= ₹ 10 + ₹ 5 + ₹ 5$$

$$= ₹ 20$$

∴ Net tax paid by consumer = ₹ 20.

**Question 4.** A shopkeeper sells an article at its marked price (Rs. 7,500) and charges sales-tax at the rate of 12% from the customer. If the shopkeeper pays a VAT of Rs. 180; calculate the price (inclusive of tax) paid by the shopkeeper.

**Solution :** Since, the shopkeeper sells the article ₹ 7,500 and charges sales-tax at the rate of 12%.

∴ Tax charged by the shopkeeper

$$= 12\% \text{ of } ₹ 7,500$$

$$= \frac{12}{100} \times ₹ 7,500$$

$$= ₹ 900$$

∴ VAT = Tax charged - Tax paid

$$\Rightarrow ₹ 180 = ₹ 900 - \text{Tax paid}$$

⇒ Tax paid by the shopkeeper

$$= ₹ 900 - ₹ 180$$

$$= ₹ 720$$

If the shopkeeper buys the article for ₹  $x$

$$\text{Tax on it} = 12\% \text{ of } ₹ x = ₹ 720$$

$$\Rightarrow \frac{12}{100} \times ₹ x = ₹ 720$$

$$\Rightarrow x = ₹ 6,000$$

∴ The price (inclusive of tax) paid by the shopkeeper

$$= ₹ 6,000 + ₹ 720$$

$$= ₹ 6,720 \quad \text{Ans.}$$

Alternatively :

The price (inclusive of tax) paid by the shopkeeper

$$= ₹ 6,000 + 12\% \text{ of } ₹ 6,000$$

$$= ₹ 6,000 + ₹ 720 = ₹ 6,720$$