EXERCISE 13.3

1. The list price of a refrigerator is Rs. 9700. If a value added tax of 6% is to be charged on it, how much one has to pay to buy the refrigerator?
Solution:
Given,
The list price of a refrigerator is = Rs 9700
VAT = 6%
Rate of VAT = 6% of Rs 9700
= 6/100 × 9700
= Rs 582
∴ The total amount one has to pay to buy refrigerator is Rs 9700 + Rs 582 = Rs 10282

2. **Vikram bought a watch for Rs. 825. If this amount includes 10% VAT on the list prices. What was the list price of the watch?**
Given,
Vikram bought watch for = Rs 825
VAT = 10%
Let the list price of the watch be = Rs x
VAT at the rate of 10% on Rs x = Rs 10/100 × x = Rs x/10
So, the list price of the watch = Rs (x + x/10) = Rs 11x/10
It is given that watch is bought at the price of Rs 825
∴ 11x/10 = 825
x = (825×10)/11
= 750
∴ List price of the watch is Rs 750

3. **Aman bought a shirt for Rs. 374.50 which includes 7% VAT. Find the list price of the shirt.**
Solution:
Given,
Aman bought a shirt for = Rs 374.50
VAT = 7%
Let the list price of the shirt be = Rs x
VAT at the rate of 7% on Rs x = Rs 7/100 × x = Rs 7x/100
So, the list price of the shirt = Rs (x + 7x/100) = Rs 107x/100
It is given that shirt is bought at the price of Rs 374.50
∴ 107x/100 = 374.50
x = (374.50×100)/107

= 350
∴ List price of the shirt is Rs 350

4. Rani purchases a pair of shoes whose sale price is Rs. 175. If she pays VAT at the rate of 7%, how much amount does she pay as VAT? Also, find the net value of the pair of shoes.
Solution:
Given,
Sale price of shoes = Rs.175
VAT = 7%
VAT at the rate 7% of 175 = 7/100 × 175 = Rs 12.25
∴ Net value of pair of shoes = sale price +VAT
= 175 + 12.25 = Rs 187.25

5. Swarna paid Rs. 20 as VAT on a pair of shoes worth Rs. 250. Find the rate of VAT.
Solution:
Given,
List price of shoes = Rs.250
Let VAT be = x%
So, VAT at the rate x% of 250 = 20 (Given)
x = (20×100)/250 = 8%
∴ VAT = 8%

6. Sarita buys goods worth Rs. 5500. She gets a rebate of 5% on it. After getting the rebate if VAT at the rate of 5% is charged, find the amount she will have to pay for the goods.
Solution:
Given,
Price of goods is = Rs 5500
Discount = 5%
VAT = 5% of selling price
So,
Selling price = 95/100 × 5500 = Rs 5225
And,
VAT = 5/100 × 5225 = Rs 261.25
∴ Sarita has to pay an amount of Rs (5225 + 261.25) = Rs 5486.25 for the goods

7. The cost of furniture inclusive of VAT is Rs. 7150. If the rate of VAT is 10%, find the original cost of the furniture.

Solution:

Given,

Cost of furniture inclusive of VAT is = Rs 7150

VAT = 10%

Let us consider the original cost of furniture be = Rs x

VAT at the rate of 10% on Rs x = Rs 10/100 × x = Rs 10x/100

So,

$x + 10x/100 = 7150$

$(100x+10x)/100 = 7150$

$110x/100 = 7150$

$11x/10 = 7150$

$11x = 7150 \times 10$

$x = 71500/11$

$= 6500$

∴ Original cost of the furniture is Rs 6500

8. A refrigerator is available for Rs. 13750 including VAT. If the rate of VAT is 10%, find the original cost of the refrigerator.

Solution:

Given,

Cost of refrigerator inclusive of VAT is = Rs 13750

VAT = 10%

Let us consider the original cost of refrigerator be = Rs x

VAT at the rate of 10% on Rs x = Rs 10/100 × x = Rs 10x/100

So,

$x + 10x/100 = 13750$

$(100x+10x)/100 = 13750$

$110x/100 = 13750$

$11x/10 = 13750$

$11x = 13750 \times 10$

$x = 137500/11$

$= 12500$

∴ Original cost of the refrigerator is Rs 12500

9. A colour T.V. is available for Rs. 13440 inclusive of VAT. If the original cost of TV is Rs. 12000, find the rate of VAT.

Solution:

Given,
Cost of TV inclusive of VAT is = Rs 13440
Original cost of the TV is = Rs 12000
So, let us consider the rate of VAT = x%
VAT at the rate of x% on Rs 12000 = Rs x/100 × 12000 = Rs 120x
So,
12000 + 120x = 13440
120x = 13440-12000
120x = 1440
x = 1440/120
= 12
∴ Rate of VAT = 12%

10. Reena goes to a shop to buy a radio, costing Rs. 2568. The rate of VAT is 7%. She tells the shopkeeper to reduce the price of the radio such that she has to pay Rs. 2568, inclusive of VAT. Find the reduction needed in the price of radio.
Solution:
Given,
Cost of the radio is = Rs 2568
VAT = 7%
Let the reduced price of the radio after discount be Rs x.
Then,
VAT = 7% of x = Rs 7x/100
So, SP = Rs (x+7x/100) = Rs 107x/100
It is given that the selling price should be Rs 2568
107x/100 = 2568
107x = 2568 × 100
x = 256800/107
= 2400
Reduced price of the radio after discount = Rs 2400
∴ Reduction needed in the price of the radio is Rs (2568 - 2400) = Rs 168

11. Rajat goes to a departmental store and buys the following articles:

Item	Price per item	Rate of VAT
2 Pairs of shoes	Rs 800	5%
1 sewing machine	Rs 1500	6%
2 tea – sets	Rs 650	4%

Calculate the total amount he has to pay to the store.

Solution:
Given,
CP of 2 pair of shoes = Rs 800×2 = Rs 1600
Rate of VAT = 5%
So,
VAT = 5% of 1600 = 5/100 × 1600 = Rs 80
So, amount Rajat paid for 2 pair of shoes = Rs (1600+80) = Rs 1680

CP of 1 sewing machine = Rs 1500
Rate of VAT = 6%
So,
VAT = 6% of 1500 = 6/100 × 1500 = Rs 90
So, amount Rajat paid for 1 sewing machine = Rs (1500+90) = Rs 1590

CP of 2 tea-sets = Rs.650 ×2 = Rs 1300
Rate of VAT = 4 %
VAT = 4% of 1300 = 4/100 × 1300 = Rs 52
So, amount Rajat paid for 2 tea-sets = Rs (1300+52) = Rs 1352

∴ Total amount Rajat needs to pay is Rs (1680+1590+1352) = Rs 4662

12. Ajit buys a motorcycle for Rs. 17600 including value added tax. If the rate of VAT is 10%, what is the sale price of the motorcycle?
Solution:
Given,
Cost of motorcycle including VAT = Rs 17600
Rate of VAT = 10%
Let us consider the sale price be = Rs x
VAT at the rate of 10% on Rs x = Rs 10/100 × x = Rs 10x/100
So,
x + 10x/100 = 17600
11x/10 = 17600
11x = 17600×10
x = 176000/11
= 16000
∴ Sale price of the motorcycle is Rs 16000

13. Manoj buys a leather coat costing Rs. 900 at Rs. 990 after paying the VAT. Calculate the rate of VAT charged on the coat.

Solution:
Given,
CP of the coat is = Rs 900
Let the rate of VAT be = x%
So,
VAT = x/100 × 900 = Rs 9x
So from the question,
900 + 9x = 990
9x = 90
x = 10
∴ Manoj was charged 10% VAT on the leather coat

14. Rakesh goes to a departmental store and purchases the following articles:
(i) Biscuits and bakery products costing Rs. 50, VAT @ 5%
(ii) medicine costing Rs.90, VAT @ 10%
(iii) clothes costing Rs. 400, VAT @ 1% and
(iv) cosmetics costing Rs. 150, VAT @ 10%.
Calculate the total amount to be paid by Rakesh to the store.
Solution:
(i) We have,
Cost of biscuits and bakery products = Rs 50
VAT = 5%
So, rate of VAT = 5% of 50 = 5/100 × 50 = Rs 2.50
Amount paid for biscuits and bakery products = Rs (50+2.50) =Rs 52.50

(ii) We have,
Cost of medicine = Rs 90
VAT = 10%
So, rate of VAT = 10% of 90 = 10/100 × 90 = Rs 9
Amount paid for medicines = Rs (90+9) =Rs 99

(iii) We have,
Cost of clothes = Rs 400
VAT = 1%
So, rate of VAT = 1% of 400 = 1/100 × 400 = Rs 4
Amount paid for clothes = Rs (400+4) = Rs 404

(iv) We have,

Cost of cosmetics = Rs 150
VAT = 10%
So, rate of VAT = 10% of 150 = 10/100 × 150 = Rs 15
Amount paid for the cosmetics is = Rs (150+15) = Rs 165

∴ Total amount Rakesh paid at departmental store = Rs (52.50+99+404+165) =Rs 720.50

15. Rajeeta purchased a set of cosmetics. She paid Rs. 165 for it including VAT. If the rate of VAT is 10%, find the sale price of the set.
Solution:
Given,
Cost of set of cosmetics = Rs 165
VAT = 10%
Let us consider the sale price of set be = Rs x
Rate of VAT = 10% of x = 10x/100
So,
x + 10x/100 = 165
11x/10 = 165
11x = 165 × 10
x = 1650/11
= 150
∴ Sale price of set of cosmetics is Rs 150

16. Sunita purchases a bicycle for Rs. 660. She has paid a VAT of 10%. Find the list price of the bicycle?
Solution:
Given,
Cost of bicycle = Rs 660
VAT = 10%
Let us consider the sale price of bicycle be = Rs x
Rate of VAT = 10% of x = 10x/100
So,
x + 10x/100 = 660
11x/10 = 660
11x = 660 × 10
x = 6600/11
= 600
∴ List price of bicycle is Rs 600

17. The sales price of a television, inclusive of VAT, is Rs. 13,500. If VAT is charged at the rate of 8% of the list price, find the list price of the television.

Solution:

Given,

Cost of television inclusive of VAT is = Rs 13440

Let us consider the list price of television be = Rs x

VAT = 8%

Rate of VAT = 8% of x = 8/100 × x = 8x/100

So,

x + 8x/100 = 13500

108x/100 = 13500

108x = 13500×100

x = 1350000/108

= 12500

∴ List price of television is Rs 12500

18. Shikha purchased a car with a marked price of Rs. 210000 at a discount of 5%. If VAT is charged at the rate of 10%, find the amount Shikha had paid for purchasing the car.

Solution:

Given,

Marked price = Rs 210000

Discount = 5% of Rs 210000 = Rs = 5/100 × 210000 = Rs 10500

The net price of the car is Rs 210000 – Rs 10500 = Rs 199500

VAT = 10%

Rate of VAT = 10% of Rs 199500 = Rs 10/100 × 199500 = Rs 19950

So, SP of the car = Rs (199500+19950) = Rs 219450

∴ Shikha has paid Rs 219450 to purchase the car.

19. Shruti bought a set of cosmetic items for Rs. 345 including 15% value added tax and a purse for Rs. 110 including 10% VAT. What percent is the VAT charged on the whole transaction?

Solution:

Given,

CP of set of cosmetic items = Rs 345

Let us consider the price of cosmetic be = Rs x

VAT = 15% = 15/100 × x = 15x/100

So,

x + 15x/100 = 345

115x/100 = 345
115x = 345×100
x = 34500/115
= 300

CP of purse = Rs 110
Let us consider the price of purse be = Rs y
VAT = 10% = 10/100 × y = 10y/100 = y/10
So,
y + y/10 = 110
11y/10 = 110
11y = 110×10
y = 1100/11
= 100

So, Total price = 300+100 = Rs 400

Let the VAT on the whole truncation be r%
Now, r% of 400 = r/100 × 400 = 4r
So,
400 + 4r = (345+110)
400 + 4r = 455
4r = 455 – 400
4r = 55
r = 55/4
= 13.75
∴ VAT on whole transaction is 13.75%

20. List price of a cooler is Rs. 2563. The rate of VAT is 10%. The customer requests the shopkeeper to allow a discount in the price of the cooler to such an extent that the price remains Rs. 2563 inclusive of VAT. Find the discount in the price of the cooler.
Solution:
Given,
Cost of the cooler is = Rs 2563
VAT = 10%
Let the reduced price of the radio after discount be Rs x.
Then,
VAT = 10% of x = Rs 10x/100

So, SP = Rs (x+10x/100) = Rs 110x/100
It is given that the selling price should be Rs 2563
110x/100 = 2563
110x = 2563 × 100
x = 256300/110
= 2330
Reduced price of the cooler after discount = Rs 2330
∴ Discount needed in the price of the cooler is Rs (2563 - 2330) = Rs 233

21. List price of a washing machine is Rs. 9000. If the dealer allows a discount of 5% on the cash payment, how much money will a customer pay to the dealer in cash, if the rate of VAT is 10%?
Solution:
Given,
List price of washing machine is = Rs 9000
Discount allowed = 5% = 5/100
Selling price = 5/100 × 9000 = Rs 450
So, cost of washing machine = list price – discount
= Rs 9000 – Rs 450
= Rs 8550

VAT = 10% of 8550 = 10/100 × 8550 = Rs 855
∴ The customer has to pay an amount of Rs (8550+855) = Rs 9405