ii) let $x\%$ of $1365\,m$ is $(204\frac{3}{4})\,m$

$\therefore \quad \frac{x}{100} \times 1365 = 204\frac{3}{4}$

$$\Rightarrow \quad x = \overset{273}{\underset{1}{\cancel{\frac{819}{4}}}} \times \overset{25}{\underset{\underset{455}{\cancel{1365}}}{\cancel{100}}}$$

$$= \frac{273 \times \overset{5}{\cancel{25}}}{\underset{91}{\cancel{455}}}$$

$$= \frac{\overset{3}{\cancel{273}} \times 5}{\cancel{91}}$$

$$= 15$$

$\therefore \ (204\frac{3}{4})\,m$ is 15% of $1365\,m$

iii) let $x\%$ of ₹ 200 be ₹ 4

$\therefore \quad \frac{x}{100} \times 200 = 4$

$$\Rightarrow \quad x = \frac{4}{2} = 2$$

$\therefore$ ₹ 4 is 2% of ₹ 200.

iv) let $x\%$ of 150 marbles be 45 marbles.

$\therefore \quad \frac{x}{100} \times 150 = 45$

$$\Rightarrow \quad x = \frac{45 \times 100}{150} = \frac{45 \times 2}{3}$$

$$= 15 \times 2 = 30$$

$\therefore$ 45 marbles are 30% of 150 marbles.

10. Which is more? (convert to %)

(i) 19 marks out of 38 marks or 25 marks out of 40 marks.

(ii) 12 litres out of 60 litres or 73 litres out of 365 litres.

Solution : i, 19 marks out of 38 marks.

let $x\%$ of 38 marks = 19 marks.

$\therefore \frac{x}{100} \times 38 = 19$

$\Rightarrow x = \frac{19 \times 100}{38} = \frac{100}{2} = 50$

$\therefore$ 19 marks are 50% of 38 marks.

Now, 25 marks out of 40 marks.

let $y\%$ of 40 marks = 25 marks

$\Rightarrow \frac{y}{100} \times 40 = 25$

$\Rightarrow y = \frac{25 \times 100}{40} \overset{25}{\underset{10}{}}$

$= \frac{625}{10} = 62.5$

$\therefore$ 25 marks are 62.5% of 40 marks.

62.5 % is more than 50%.

$\therefore$ 25 marks out of 40 marks.

ii) 12 litres out of 60 litres.

let $x\%$ of 60 liters = 12 litres.

$\therefore \frac{x}{100} \times 60 = 12$

$$\Rightarrow x = \frac{12 \times 100}{60} = \frac{12 \times 10}{6} = 20$$

∴ 12 litres are 20% of 60 litres.

73 litres out of 365 litres.

let y% of 365 litres = 73 litres.

$$\therefore \frac{y}{100} \times 365 \text{ litres} = 73 \text{ litres}.$$

$$\Rightarrow y = \frac{73 \times 100}{365} = \frac{100}{5} = 20$$

∴ 73 litres are 20% of 365 litres.

∴ both are 20%

∴ 12 litres and 73 litres are of same percent. ∴ Both are equal

11. *x* is 40% of *a* and *y* is 60% of *a*. Write *x + y* in terms of *a*. [Hots]

Solution: 40% of $a = x$

$$\Rightarrow \frac{40}{100} \times a = x$$

$$\Rightarrow x = \frac{40a}{100}$$

60% of $a = y$

$$\Rightarrow \frac{60}{100} \times a = y$$

$$\Rightarrow y = \frac{60a}{100}$$

$$\therefore x + y = \frac{40a}{100} + \frac{60a}{100} = \frac{40a + 60a}{100}$$

$$\therefore x+y = \frac{100\,a}{100} = a.$$

$$\therefore \underline{\underline{x+y = a}}$$

EXERCISE 8.4

1. In a factory, 15% of the employees are males, and the number of females are 510. Find the total number of employees and the number of male employees.

Solution : Let Total number of employees

be x.

Then no. of males $= 15\%$ of x

$$= \frac{15}{100} \times x = \frac{15x}{100}$$

$\therefore$ No. of females $= (100-15)\%$ of x

$$= 85\% \text{ of } x$$

$$= \frac{85}{100} \times x = \frac{85x}{100}$$

But No. of females $= 510$ (given)

$$\therefore \frac{85x}{100} = 510$$

$$\Rightarrow x = \frac{\overset{30}{\cancel{510}} \times \overset{20}{\cancel{100}}}{\underset{17}{\cancel{85}}} = 600$$

$\therefore$ Total no. of employees $= 600$.

and no. of male employees $= 600 - 510$

$$= 90.$$

2. The population of a village has reduced by 5% and is now 23,750 due to villagers migrating to the neighbouring city. What was the population before?

Solution : suppose the population before $= x$

population reduced $= 5\%$ of x.

∴ Remaining population $= (100-5)\%$

$= 95\%$ of x

But present population is given to be 23,750

∴ 95% of $x = 23,750$

$\Rightarrow \dfrac{95}{100} \times x = 23,750$

$\Rightarrow x = \dfrac{\overset{1250}{\cancel{23,750}} \times \overset{20}{\cancel{100}}}{\underset{1}{\cancel{95}} \underset{19}{}}$

$= 25000$

∴ Population before $= x = 25,000$.

3. The salary of Sheela is increased by 6.5%. If her present salary is ₹ 6390, find her salary before the increment.

Solution : suppose the salary before $= ₹ x$

Increase salary $= 6.5\%$ of x

$= \dfrac{6.5}{100} \times x = \dfrac{65x}{1000}$

∴ present salary $= ₹ x + ₹ \dfrac{65x}{1000}$

But given present salary $= ₹ 6390$

$$\therefore ₹ \, x + ₹ \, \frac{65x}{1000} = ₹ \, 6390$$

$$\Rightarrow \quad x + \frac{\overset{13}{65x}}{\underset{200}{\cancel{1000}}} = 6390$$

$$\Rightarrow \quad x + \frac{13x}{200} = 6390$$

multiplying both sides by 200, we get

$$200x + 13x = 6390 \times 200$$

$$\Rightarrow \quad 213x = 6390 \times 200$$

$$\Rightarrow \quad x = \frac{\overset{30}{\cancel{6390}} \times 200}{\cancel{213}}$$

$$\Rightarrow \quad x = 6000$$

∴ Salary Before the increment
$$= ₹ \, 6000.$$

4. Amit secured 440 marks out of 550 and Sumit secured 507 marks out of 650. Who performed better?

Solution: let x% of 550 = 440

$$\therefore \frac{x}{100} \times 550 = 440$$

$$\Rightarrow x = \frac{\overset{4}{\cancel{440}} \times \overset{20}{\cancel{100}}}{\underset{\underset{5}{\cancel{5}}}{\cancel{550}}} = 80$$

∴ 440 is 80% of 550

∴ Amit secured 80%

Now, let $y\%$ of $650 = 507$

$\therefore \dfrac{y}{100} \times 650 = 507$

$\Rightarrow y = \dfrac{\overset{39}{\cancel{507}} \times \overset{2}{\cancel{100}}}{\underset{\underset{1}{+3}}{\cancel{650}}} = 78\%$

$\therefore 507$ is 78% of 650

$\therefore$ Sumit secured 78%.

$\therefore$ Amit performed better.

5. In an examination, a student should secure 40% to pass. A student secures 145 marks and fails by 15 marks. Find the maximum marks of the exam. [Hots]

Solution: Suppose maximum marks of

the exam $= x$

$\therefore$ passing marks $= 40\%$ of x

$= \dfrac{40}{100} \times x$

$= \dfrac{2x}{5}$

A student secures 145 marks and fails by 15 marks.

$\therefore$ passing marks $= 145 + 15$

$= 160$

$\therefore \dfrac{2x}{5} = 160$

$\Rightarrow 2x = 160 \times 5$

$$\Rightarrow \quad x = \frac{\overset{80}{+60} \times \overset{}{5}}{\overset{}{2}} = 400$$

∴ Maximum marks of the exam

$$= x = 400$$

6. Mrs. Sharma saves 15% of her salary and spends the rest. If she spends ₹ 13260, find her salary.

Solution: Suppose the salary = ₹ x

Amount of Saving = 15% of x

∴ Amount of Spending = $(100-15)\%$ of x

$$= 85\% \text{ of } x$$

$$= \frac{85}{100} \times x = \frac{17x}{20}$$

But given Amount of Spending = ₹ 13260

$$\therefore \quad \frac{17x}{20} = 13260$$

$$\therefore \quad x = \frac{\overset{780}{13260} \times 20}{\overset{}{17}}$$

$$= 15,600$$

∴ Mrs. Sharma Salary = ₹ 15,600.

7. 46% of the students in a school are girls. If there are 552 girls, find the number of boys in the school.

Solution: Suppose total students = x

Then, No. of Girls = 46% of x

$$= \frac{46}{100} \times x$$

$$= \frac{\overset{23}{\cancel{46}} x}{\underset{50}{\cancel{100}}}$$

$$= \frac{23x}{50}.$$

But Given no. of Girls $= 552$

$$\therefore \frac{23x}{50} = 552$$

$$\Rightarrow x = \frac{\overset{24}{\cancel{552}} \times 50}{\underset{1}{\cancel{23}}}$$

$$= 1200$$

$\therefore$ Total no. of students $= 1200$

$\therefore$ No. of Boys $= 1200 - 552$

$$= 648$$

8. In an examination, 96% of the candidates passed. If 2272 candidates failed, how many candidates appeared for the examination and how many passed?

Solution : Suppose No. of candidates

appeared $= x$

No. of candidates passed $= 96\% $ of x.

$\therefore$ No. of candidates failed $= (100-96)\%$ of x

$$= 4\% \text{ of } x$$

$$= \frac{4}{100} \times x = \frac{x}{25}$$

But No. of candidates failed $= 2272$

$$\therefore \frac{x}{25} = 2272$$

$$\Rightarrow x = 2272 \times 25$$

$$\Rightarrow x = 56,800.$$

∴ No. of candidates appeared = 56,800.

∴ No. of candidates passed = 56,800 − 2272

$$= 54,528.$$

9. For Diwali, a shopkeeper reduces the prices of all his goods by 15%. Babli buys a saree from the shop for ₹ 552.50. What was the original price of the saree and how much discount has she got? [Hots]

Solution : Suppose original price = ₹ x

Discount = 15% of x

$$= \frac{15}{100} \times x = \frac{3x}{20}$$

∴ Cost price = $x - \frac{3x}{20}$

$$= \frac{20x - 3x}{20} = \frac{17x}{20}$$

But Given cost price = ₹ 552.50

∴ $\frac{17x}{20} = ₹ 552.5$

∴ $x = \frac{552.5 \times 20}{17}$

$$= \frac{5525 \times 2}{17}$$

$$= 325 \times 2$$

$$= 650$$

∴ original price = x = ₹ 650.

∴ Discount = 650 − 552.5

$$= ₹ 97.5$$

10. The price of a car increases from ₹ 2,25,000 to ₹ 2,56,500. What is the increase%?

Solution: Price in the beginning = ₹ 2,25,000

Increased price = ₹ 2,56,500.

∴ Increase = 2,56,500 − 2,25,000

$$= ₹ 31,500.$$

∴ Increase % = $\dfrac{31,500}{2,25,000} \times 100 \%$

$$= \dfrac{3150}{225} \%$$

$$= 14 \% .$$

11. In a garden 60% are rose plants, 15% are lily plants and the rest are marigold. If the number of lily plants is 90, find the total plants, the number of rose plants and marigold plants in the garden.

Solution: Suppose Total plants = x

∴ No. of lily plants = 15 % of x

$$= \dfrac{15}{100} \times x$$

$$= \dfrac{3}{20} x .$$

No. of lily plants (given) = 90

∴ $\dfrac{3x}{20} = 90$

⟹ $3x = 90 \times 20 = 1800$

⟹ $x = \dfrac{1800}{3} = 600.$

∴ Total No. of plants = 600.

∴ No. of rose plants = 60% of x

$$= \frac{60}{100} \times 600$$

$$= 60 \times 6 = 360.$$

∴ No. of Marigold plants =

$$600 - 360 - 90$$

$$= 150.$$

12. The Indian cricket team won 10 matches out of 15 matches played. What per cent of matches did they lose?

Solution: No. of Matches played = 15

No. of Matches won = 10

∴ No. of Matches lose = 15 − 10 = 5

∴ percentage of Matches lose = $\frac{5}{15} \times 100\%$

$$= \frac{1}{3} \times 100\%$$

$$= 33\frac{1}{3}\%$$

13. If 25% of the workers in a factory are females and the number of male workers is 360, find the total number of workers in the factory.

Solution: Suppose Total No. of workers = x

No. of females = 25% of x

$$= \frac{25}{100} \times x = \frac{x}{4}$$

∴ No. of Males = $(100 - 25)\%$ of x

$$= 75\% \text{ of } x$$

$$= \frac{75}{100} \times x = \frac{3x}{4}$$

But No. of Males (given) = 360

$$\therefore \quad \frac{3x}{4} = 360$$

$$\Rightarrow \quad 3x = 360 \times 4$$

$$\Rightarrow \quad x = \frac{360 \times 4}{3} = 120 \times 4$$

$$= 480.$$

∴ Total No. of Workers = x = 480.

14. Mohit spends 10% of his savings on a geometry box which costs ₹ 15. How much did Mohit have before he bought the geometry box?

Solution: suppose Mohit has ₹ x before

Money spent on Geometry Box

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

$$= \frac{10}{100} \times x = \frac{x}{10}.$$

But the Cost of Geometry Box = ₹15

$$\therefore \quad \frac{x}{10} = 15$$

$$\Rightarrow \quad x = 15 \times 10 = 150.$$

∴ Mohit has ₹ 150 before buying the G. Box.

15. Out of a total of 600 marks, Birendra scored 91%. How much more marks would he need to score 94%?

Solution: Total marks = 600.

Birendra score = 91% of 600

$$= \frac{91}{100} \times 600$$

$$= 91 \times 6 = 546$$

94% of 600 $= \frac{94}{100} \times 600$

$$= 94 \times 6$$

$$= 564$$

94% of 600 − 91% of 600 = 564 − 546

$$= 18.$$

∴. Birendra Need 18 marks more to Score 94%.

16. Farooq bought a new scooter for ₹ 17,500. After one year its value decreased by 15%, what is its value after one year?

Solution: Cost of New Scooter = ₹ 17,500

Decrease in the price = 15% of ₹ 17,500

∴. Value after 1 year = (100 − 15)% of ₹ 17,500

$$= 85\% \text{ of } ₹ 17,500$$

$$= \frac{85}{100} \times 17,500.$$

$$= 85 \times 175$$

$$= ₹ 14,875$$

17. Rehan donated 15% of his savings to Flood Relief Fund. He distributed the remaining amount among his two children and wife equally. If the total savings of Rehan is ₹ 1,20,000, find the amount donated to Flood Relief Fund. Also, find the amount received by each, his wife and two children. [Hots]

Solution: Total savings = ₹ 1,20,000.

Amount donated to Flood Relief fund = 15% of ₹ 1,20,000.

$$= \frac{15}{100} \times 1,20,000$$

$$= 15 \times 1200$$

$$= ₹ 18,000.$$

Remaining Amount = ₹ 1,20,000 − ₹ 18,000

$$= ₹ 1,02,000$$

₹ 1,02,000 is distributed among 2 children and Wife equally.

∴ Amount received by each

$$= ₹ \frac{1,02,000}{3}$$

$$= ₹ 34,000.$$

18. Pushkar obtained 410 marks out of 500 and Pragya obtained 546 marks out of 700. Whose performance is better?

Solution: pushkar Score $= \frac{410}{500}$

∴ Pushkar percentage $= \frac{410}{500} \times 100\%$

$$= \frac{410}{5} = 82\%.$$

Pragya score = $\frac{546}{700}$

Pragya percentage = $\frac{546}{700} \times 100\%$

$= \frac{546}{7}\% = 78\%$

∴ pushkar performance 82% is better.

EXERCISE 8.5

1. A worker is paid ₹ 595 for 7 days. How much will he earn in 15 days?

solution: payment for 7 days = ₹ 595

∴ payment for 1 day = ₹ $\frac{595}{7}$ = ₹ 85

∴ payment for 15 days = ₹ 85 × 15

= ₹ 1,275

∴ He will earn ₹ 1,275 in 15 days.

2. 9 buses can carry 504 people. Find :
   (i) how many buses are needed to carry 3024 people?
   (ii) number of people that 13 buses carry.

solution: 9 buses can carry 504 people

∴ 1 bus can carry $\frac{504}{9}$ = 56 people

(i) No. of Buses needed to carry

3024 people = $\frac{3024}{56}$ = 54

∴ 54 Buses needed.

(ii) Number of people 13 buses
carry $= 56 \times 13$
$= 728$.

3. A truck can cover 582 km in 12 hours. Find the distance covered by the truck in 26 hours. Also, find the time taken to cover 1843 km.

Solution : Distance covered in 12 hours
$= 582$ km
∴ Distance covered in 1 hour
$= \dfrac{582}{12} = 48.5$ km.

∴ Distance covered in 26 hours
$= 48.5$ km $\times 26$
$= 1,261$ km.

Time taken for 48.5 km $= 1$ hour.

∴ Time taken for 1843 km $= \dfrac{1843}{48.5}$
$= \dfrac{18430}{48.5} = 38$ hrs.

4. The cost of 26 rice bags, each carrying 25 kg is ₹ 14,300. What is the cost of 14 rice bags carrying 15 kg each?

Solution : Cost of 26 rice bags $= ₹ 14,300$
∴ Cost of 1 rice bag $= ₹ \dfrac{14,300}{26} = 550$.
Cost of 25 kg $= ₹ 550$
∴ Cost of 1 kg $= ₹ \dfrac{550}{25} = ₹ 22$
∴ Cost of 15 kg bag $= ₹ 22 \times 15 = ₹ 330$.

∴ cost of 14 rice bags (15kg each)

$$= 14 \times ₹ 330$$

$$= ₹ 4,620$$

5. A bus covers 400 km and consumes 25 *l* of diesel. Find the cost of diesel required to cover 1500 km if cost of 1 *l* diesel is ₹ 36.

Solution: Distance covered with 25 l

diesel = 400 km.

∴ Distance covered in 1 l diesel = $\frac{400}{25}$ kms.

$$= 16 \text{ kms.}$$

∴ Diesel required to cover 16 km = 1 l

∴ Diesel required to cover 1500 km

$$= \frac{1500}{16}$$

$$= 93.75 \, l.$$

Cost of 1 l diesel = ₹ 36

∴ cost of 93.75 l = 93.75 × ₹ 36

$$= ₹ 3,375$$

∴ cost of diesel required to cover 1500 km = ₹ 3,375.

6. 36 strips, each containing 12 tablets cost ₹ 1512. How many tablets can be bought for ₹1176?

Solution: cost of 36 strips = ₹ 1512

∴ Cost of 1 strip = $\frac{1512}{36}$ = ₹ 42

Cost of 12 tablets (1 strip) = ₹ 42

∴ Cost of 1 tablet = ₹ $\frac{42}{12} = \frac{7}{2}$

= ₹ 3.5

Now, ₹ 3.5 = 1 Tablet.

₹ 1176 = How many tablets?

∴ $\frac{1176}{3.5} = \frac{11760}{35} = 336$

∴ 336 tablets can be bought for

RS 1176.

7. A labourer earns ₹ 68,250 in 13 months.

   (i) How much will he earn in 19 months?

   (ii) In how many months will he earn ₹ 36,750?

Solution : earning in 13 months = ₹ 68,250

∴ Earning in 1 month = ₹ $\frac{68,250}{13}$

= ₹ 5,250

(i) ∴ He will earn How much in 19 months?

Earning in 19 months = ₹ 5,250×19

= ₹ 99,750.

∴ He will earn ₹ 99,750 in 19 months.

(ii) Now, ₹ 5,250 = 1 month

₹ 36,750 = How many months?

$$\therefore \frac{36750}{5250} = 7 \text{ months.}$$

∴ He will earn ₹ 36,750 in 7 months.

8. 4 boats can carry 92 people. Find the number of boats required to carry 207 people?

Solution: 4 boats can carry 92 people

∴ 1 boat can carry $\frac{92}{4} = 23$ people.

Now, 23 people need 1 boat

207 people need How many boats?

$$\therefore \frac{207}{23} = 9$$

∴ 9 boats required to carry 207 people.

9. A train has 22 bogies, carrying a total of 1584 passengers. The cost of the ticket per passenger is ₹ 58. Find the total cash collection, if the number of the bogies is increased to 25.

Solution: 22 bogies carry 1584 passengers.

∴ 1 bogie carry $\frac{1584}{22} = 72$ passengers.

Cost of 1 Ticket = ₹ 58

∴ cost of 72 Tickets = ₹ 58 × 72 = ₹ 4,176

∴ Collection for 1 bogy = ₹ 4,176

∴ collection for 25 bogies = ₹ 4,176×25

$$= ₹ 1,04,400$$

∴ Total cash collection = ₹ 1,04,400.

10. **288 packets of biscuits, each having 12 biscuits, are packed in 9 cartons. How many such cartons are required to pack 1920 biscuits?**

<u>Solution</u>: In 9 cartons 288 packets
are packed.

∴ In 1 carton $\dfrac{288}{9} = 32$ packets

are packed.

1 packet has 12 biscuits.

∴ 32 packets has $32×12 = 384$ biscuits.

∴ 384 biscuits packed in 32 packets
(i.e in 1 carton)

∴ 1920 biscuits packed in How many cartons?

∴ $\dfrac{1920}{384} = 5$

∴ 1920 biscuits are packed in 5 cartons.

EXERCISE 8.6

1. Fill up the suitable blanks in the following table :

	CP (₹)	SP (₹)	Loss (₹)	Loss%	Profit (₹)	Profit%
(a)	1600	1856				
(b)	2700					8
(c)		1995				14
(d)	4500			25		
(e)	9800		784			
(f)		6016		6		

Solution : (a)

$$profit = SP - CP$$
$$= ₹1856 - ₹1600$$
$$= ₹256$$

$$Profit\% = \frac{profit}{CP} \times 100$$
$$= \frac{256}{1600} \times 100$$
$$= \frac{256}{16} = 16$$

(b)
$$CP = ₹2700.$$
$$profit = 8\% \text{ of } ₹2700$$
$$= \frac{8}{100} \times 2700 = ₹216$$
$$SP = CP + profit$$
$$= ₹2700 + ₹216$$
$$= ₹2916.$$

(c)
$$sp = ₹ 1995$$

Profit % = 14

$$\therefore CP = \frac{100}{(100 + \text{Profit} \%)} \times SP$$

$$= \frac{100}{(100 + 14)} \times 1995$$

$$= \frac{100}{114} \times 1995$$

$$= ₹ 1750$$

$$\therefore \text{Profit} = S.P - CP$$

$$= ₹1995 - ₹1750$$

$$= ₹ 245.$$

(d)

$$C.P = ₹ 4500$$

$$Loss \% = 25$$

$$Loss = 25\% \text{ of } ₹ 4500$$

$$= \frac{25}{100} \times 4500$$

$$= ₹ 25 \times 45$$

$$= ₹ 1,125$$

$$\therefore S.P = C.P - Loss$$

$$= ₹ 4500 - ₹ 1,125$$

$$= ₹ 3,375$$

(e)

$$C.P = ₹ 9800$$

$$Loss = ₹ 784$$

$$S.P = C.P - Loss = 9800 - 784$$

$$= ₹ 9,016.$$

$$Loss \% = \frac{Loss}{C.P} \times 100$$

$$= ₹\frac{784}{9800} \times 100$$

$$= ₹\frac{784}{98} = 8$$

(f) $S.P = ₹ 6016.$

$Loss\% = 6$

$$\therefore C.P = \left(\frac{100}{100 - Loss\%}\right) \times S.P$$

$$= \left(\frac{100}{100 - 6}\right) \times ₹ 6016$$

$$= \frac{100}{94} \times ₹ 6016$$

$$= 100 \times 64 = ₹ 6400.$$

$$\therefore Loss = C.P - S.P$$

$$= ₹ 6400 - ₹ 6016$$

$$= ₹ 384.$$

2. The cost price of an article is ₹ 8,900. Find the selling price, if it is sold at 15% profit.

Solution: $C.P = ₹ 8,900$

$profit\% = 15$

$$\therefore S.P = \left(\frac{100 + profit\%}{100}\right) \times cp$$

$$= \left(\frac{100 + 15}{100}\right) \times 8,900$$

$$= \frac{115}{100} \times 8,900$$

$$= 115 \times 89 = ₹ 10,235$$

3. A television is sold for ₹ 29,760 and a loss of 4% is incurred. What was the CP of the television?

Solution:

$$S.P = ₹ 29,760$$

$$Loss\% = 4$$

$$\therefore CP = \left(\frac{100}{(100 - Loss\%)}\right) \times S.P$$

$$= \left(\frac{100}{100-4}\right) \times ₹ 29,760$$

$$= \frac{100}{96} \times ₹ 29,760$$

$$= ₹ 31,000$$

4. Sarika purchased 45 dozens of pens for ₹ 3,510. She sells 20 dozens at a profit of 15% and the remaining for 10% loss. What is her total loss% or profit%? **[HOTS]**

Solution:

$$C.P \text{ (for 45 dozen)} = ₹ 3,510$$

$$\therefore C.P \text{ (for 1 dozen)} = ₹ \frac{3,510}{45} = ₹ 78$$

She sells 20 dozen at a profit of 15%.

$$\therefore C.P \text{ (for 20 dozen)} = ₹ 78 \times 20 = ₹ 1560$$

$$\therefore S.P \text{ (for 20 dozen)} = \left(\frac{100 + profit\%}{100}\right) \times C.P$$

$$= \left(\frac{100 + 15}{100}\right) \times ₹ 1560$$

$$= \frac{115}{100} \times 1560$$

$$= ₹ 1794$$

She sells remaining (25 dozen) for 10% Loss.

$$\therefore C.P \text{ (for 25 dozen)} = ₹\ 78 \times 25$$
$$= ₹\ 1950.$$

$$\therefore S.P \text{ (for 25 dozen)} = \left(\frac{100-10}{100}\right) \times 1950$$
$$= \frac{90}{100} \times 1950$$
$$= ₹\ 1755.$$

$$\therefore S.P \text{ (for 45 dozen)} = ₹\ 1794 + ₹\ 1755$$
$$= ₹\ 3549$$

$$C.P \text{ (for 45 dozen)} = ₹\ 3510$$

$$\therefore \text{profit} = S.P - C.P$$
$$= ₹\ 3549 - ₹\ 3510$$
$$= ₹\ 39$$

$$\therefore \text{profit \%} = \frac{\text{profit}}{C.P} \times 100\%$$
$$= \frac{₹\ 39}{₹\ 3510} \times 100\%$$
$$= 1.1111\ \%\ \text{or}\ 1\tfrac{1}{9}\%$$

5. Manoj buys 14 kg of sweets for ₹ 1750. Out of this, 4 kg of sweets got spoilt and so Manoj sold the remaining sweets for ₹ 150 per kg. What is his loss% or profit%?

Solution: $C.P$ (of 14 kg sweets) $= ₹\ 1750$

4 kg of sweets spoiled.

$\therefore$ 10 kg of sweets sold.

$S.P$ (of 10 kg sweets) $= ₹\ 150 \times 10$
$= ₹\ 1500$

$\therefore Loss = C.P - S.P$

$$= ₹1750 - ₹1500$$

$$= ₹250$$

$$\therefore Loss\% = \frac{Loss}{C.P} \times 100\%$$

$$= \frac{250}{1750} \times 100\%$$

$$= \frac{1}{7} \times 100\%$$

$$= 14\frac{2}{7}\%.$$

6. A man sells a dining table for ₹ 12,750, thereby suffers a loss of 15%. At what price should he have sold to get 10% profit?

Solution :

$$S.P = ₹ 12,750$$

$$Loss\% = 15$$

$$\therefore C.P = \left(\frac{100}{100 - Loss\%}\right) \times SP$$

$$= \left(\frac{100}{100 - 15}\right) \times 12,750$$

$$= \frac{100}{85} \times 12,750$$

$$= ₹ 15000$$

$\therefore$ The man purchased table for ₹ 15000

$\therefore C.P = ₹ 15000.$

for Profit $= 10\%$

$$S.P = \left(\frac{100 + 10}{100}\right) \times C.P$$