c. 30°C
$= [(30 \times 9) \div 5 + 32]\,°F$
$= [270 \div 5 + 32]\,°F$
$= [54 + 32]\,°F$
$= 86\,°F$ **Ans.**

d. 40°C
$= [(40 \times 9) \div 5 + 32]\,°F$
$= [360 \div 5 + 32]\,°F$
$= [72 + 32]\,°F$
$= 104\,°F$ **Ans.**

e. 100°C
$= [(100 \times 9) \div 5 + 32]\,°F$
$= [900 \div 5 + 32]\,°F \quad = [180 + 32]\,°F$
$= 212\,°F$ **Ans.**

2. Convert the temperatures given in the Fahrenheit scale to the Celsius scale.

Ans. a. 122°F
$= [\{(122 - 32) \times 5\} \div 9]\,°C$
$= [\{90 \times 5\} \div 9]\,°C$
$= [450 \div 9]\,°C$
$= 50\,°C$ **Ans.**

b. 131°F
$= [\{(131 - 32) \times 5\} \div 9]\,°C$
$= [\{99 \times 5\} \div 9]\,°C$
$= [495 \div 9]\,°C$
$= 55\,°C$ **Ans.**

c. 140°F
$= [\{(140 - 32) \times 5\} \div 9]\,°C$
$= [\{108 \times 5\} \div 9]\,°C$
$= [540 \div 9]\,°C$
$= 60\,°C$ **Ans.**

d. 158 °F
$= [\{(158 - 32) \times 5\} \div 9]\,°C$
$= [\{126 \times 5\} \div 9]\,°C$
$= [630 \div 9]\,°C$
$= 70\,°C$ **Ans.**

e. 194°F
$= [\{(194 - 32) \times 5\} \div 9]\,°C$
$= [\{162 \times 5\} \div 9]\,°C = [810 \div 9]\,°C$
$= 90\,°C$ **Ans.**

MCQs

Tick (✔) the correct choice :

1. How many seconds are there in a day?
   a. 60 × 60 b. 24 × 60 c. 24 × 60 × 60 ✓ d. 24

2. If 1st of October is Saturday then the number of Sundays in the month of October is :
   a. 4 b. 5 ✓ c. 3 d. 6

3. What is the reading in a thermometer when water start freezing?
   a. 32°F ✓ b. 0°F c. 212°F d. 100°F

4. 12 minutes and 20 seconds = _____ seconds.
   a. 740 ✓ b. 720 c. 640 d. 620

Worksheet

Our solar system has eight more planets other than the Earth. You have learnt that the earth rotates around its axis once a day. Time of one rotation of all the nine planets is given below. Observe the table and answer the questions given below :

Planets	Time to complete one rotation
Mercury	59 days

Venus	243 day
Earth	1 day (23 hours 56 minutes)
Mars	24 hours 37 minutes
Jupiter	9 hours 56 minutes
Saturn	10 hours 39 minutes
Uranus	17 hours 14 minutes
Neptune	16 hours 7 minutes
Pluto	6 days 9 hours

1. How much less than a day does the Earth take to rotate around its axis?

Ans. 4 minutes

2. In 365 days, it will total up to how many minutes?

Ans. 525600 minutes

3. Convert these minutes to hours.

Ans. 8760 minutes.

4. How many minutes will make up 24 hours?

Ans. 1440 minutes.

5. After how many years will the year have 366 days?

Ans. 4 years.

In Maths Lab

Ans. Do yourself

15 Money

Warm Up

The shopkeeper has made some mistakes in this bill. Correct the bill for Jhanvi.

Ans. **Date :** 14-10-2013

Name of Customer-Jhanvi

S. No.	Description	Quantity	Cost per unit	Total Cost
1.	Pencil	20	₹ 3.00	₹ 60.00
2.	Crayons	15	₹ 1.50	₹ 22.50
3.	Notebook	4	₹ 17.50	₹ 70.00
4.	Water colour	10	₹ 5.00	₹ 50.00
5.	Tiffin box	2	₹ 35.25	₹ 70.50
6.	Sketch pen	10	₹ 4.00	₹ 40.00
			Total =	₹ 313.00

Exercise-15.1

1. Find out which is better to buy.

Ans. a. 11 chocolate for ₹ 55 or 24 chocolates for ₹ 132

Ist deal

∵ Cost of 11 chocolates = ₹ 55

∴ Cost of 1 chocolate $= \frac{₹\ 55}{11} = ₹\ 5$

Now, IInd deal

∵ Cost of 24 chocolates = ₹ 132

∴ Cost of 1 chocolates $= \frac{₹\ 132}{24} = ₹\ 5.50 = ₹\ 5.50$

Clearly ₹ 5 < ₹ 5.5

So the 11 chocolates for ₹ 55 is better deal. **Ans.**

b. 2 *l* milk for ₹ 40 or 5 *l* milk for ₹ 97.50

Ist deal

∵ Cost of 2 l milk = ₹ 40

∴ Cost of 1 l milk $= \frac{₹\ 40}{2} = ₹\ 20$

Now, IInd deal

∵ Cost of 5 l milk = ₹ 97.50

∴ Cost of 1 l milk $= \frac{₹\ 97.50}{5} = ₹\ 19.50$

On comparing unit price of both we got ₹ 20 > ₹ 19.50

So, 5 *l* milk for ₹ 97.50 is better deal. **Ans.**

c. 12 pens for ₹ 120.00 or 15 pens for ₹ 136.50.

Ist deal

∵ Cost of 12 pens = ₹ 120.00

∴ Cost of 1 pen $= ₹\ \frac{₹\ 120}{12} = ₹\ 10$

IInd deal

∵ Cost of 15 pens = ₹ 136.50

∴ Cost of 1 pen $= ₹\ \frac{₹\ 136.50}{15} = ₹\ 9.10$

on comparing the unit price of both deal we get ₹ 10 > ₹ 9.1

So, 15 pens for 136.50 is better deal. **Ans.**

d. 5 glasses of juice for ₹ 75 or 15 glasses of juice for ₹ 240.

Ist deal

∵ Cost of 5 glasses of juice = ₹ 75

∴ Cost of 1 glass of juice $= \frac{₹\ 75}{5} = ₹\ 15$

IInd deal

∵ Cost of 15 glasses of juice = ₹ 240

∴ Cost of 1 glass of juice $= \frac{₹\ 240}{15} = ₹\ 16$

∵ ₹ 16 > ₹ 15

∴ 5 glases of juice for ₹ 75 is the better deal. **Ans.**

e. 6 erasers for ₹ 13.20 or 8 erasers for ₹ 18.

Ist deal

$\because$ Cost of 6 erasers = ₹ 13.20

$\therefore$ Cost of 1 eraser $= \frac{₹\ 13.20}{6} = ₹\ 2.20$

IInd deal

$\because$ Cost of 8 erasers = ₹ 18

$\therefore$ Cost of 1 eraser $= \frac{₹\ 18}{8} = ₹\ 2.25$

$\because$ ₹ 2.25 > ₹ 2.20

Thus, 6 erasers for ₹ 13.20 is the better deal. **Ans.**

2. The cost of 8 kg rice is ₹ 240. What is the price of

Ans. a. $\because$ Cost of 8 kg of rice = ₹ 240

$\therefore$ Cost of 1 kg of rice $= \frac{₹\ 240}{8} = ₹\ 30$ **Ans.**

b $\because$ Cost of 1 kg of rice = ₹ 30

$\therefore$ Cost of $\frac{5}{2}$ kg of rice $= ₹\left(30 \times \frac{5}{2}\right) = ₹\ 75$ **Ans.**

c. $\because$ Cost of 1 kg of rice = ₹ 30

$\therefore$ Cost of 25 kg of rice = ₹ 30×25

= ₹ 750 **Ans.**

3. Solve the following word problems :

Ans. a. $\because$ Cost of 5 *l* of refined oil = ₹ 407.50

$\therefore$ Cost of 1 *l* of refined oil $= \frac{₹\ 407.50}{5}$

$\therefore$ Cost of 9 *l* of refined oil $= \frac{₹\ 407.50}{5} \times 9 = ₹\ 81.5 \times 9 = ₹\ 733.50$

Thus, cost of 9*l* of oil is ₹ 735.50. **Ans.**

b. $\because$ Cost of 5 chairs = ₹ 1200

$\therefore$ Cost of 1 chair $= \frac{₹\ 1200}{5}$

$\therefore$ Cost of 2 chairs $= \frac{₹\ 1200}{5} \times 2 = ₹\ 480$

Thus the cost of 2 chairs is ₹ 48. **Ans.**

c. $\because$ Cost of 8 notebooks = ₹ 280

$\therefore$ Cost of 1 notebooks $= \frac{₹\ 280}{8}$

$\therefore$ Cost of 9 notebooks $= \frac{₹\ 280}{8} \times 9 = ₹\ 315$

Thus, Vickey paid ₹ 315 for the notebooks. **Ans.**

d. $\because$ Cost of 500 bricks = ₹ 2500

$\therefore$ Cost of 1 brick $= \frac{₹\ 2500}{500} = ₹\ 5$

Number of brick he bought = ₹ 15000

$\therefore$ Cost of 15000 bricks = ₹ $5 \times 15000 = ₹\ 75000$

Thus, Prashant paid ₹ 75000. **Ans.**

Exercise-15.2

1. Find the grain or loss :

Ans. a. C.P. = ₹ 60, S.P. = ₹ 52

∵ C.P. > S.P. ∴ Loss

Loss = C.P. – S.P.

= ₹ 60 – ₹ 52

= ₹ 8

Thus, loss ₹ 8 **Ans.**

b. C.P. = ₹ 130.80, S.P. = ₹ 112.20

∵ C.P. > S.P. ∴ Loss

Loss = C.P. – S.P.

= ₹ 130.80 – ₹ 112.80

= ₹ 18.60

Thus, loss ₹ 18.60 **Ans.**

c. C.P. = ₹ 1120.40, S.P. = ₹ 1128.60

∵ C.P. < S.P. ∴ Profit

Profit = S.P. – C.P.

= ₹ 1128.60 – ₹ 1120.40

= ₹ 8.20

Thus, profit is ₹ 8.20 **Ans.**

d. C.P. = ₹ 18.50, S.P. = ₹ 14.70

∵ C.P. > S.P. ∴ Loss

Loss = C.P. – S.P.

= ₹ 18.50 – ₹ 14.70

= ₹ 3.80

Thus, loss ₹ 3.80 **Ans.**

e. C.P. = ₹ 539.75, S.P. = ₹ 518.30

∵ C.P. > S.P. ∴ Loss

Loss = C.P. – S.P.

= ₹ 539.75 – ₹ 518.30

= ₹ 21.45

Thus, loss ₹ 21.45 **Ans.**

f. C.P. = ₹ 375.80, S.P. = ₹ 400.00

∵ C.P. < S.P. ∴ Profit

Profit = S.P. – C.P.

= ₹ 400 – ₹ 375.80

= ₹ 24.20

Thus, profit is ₹ 24.20 **Ans.**

2. Find the cost price :

Ans. a. S.P. = ₹ 6000, Profit = ₹ 600

∴ C.P. = S.P. – Profit

= ₹ 6000 – ₹ 600

= ₹ 5400

Thus the C.P. is ₹ 5400 **Ans.**

b. S.P. = ₹ 875, Profit = ₹ 120

∴ C.P. = S.P. – Profit

= ₹ 875 – ₹ 120

= ₹ 755

Thus the C.P. is ₹ 755. **Ans.**

c. S.P. = ₹ 12,000, Loss = ₹ 1200

∴ C.P. = S.P. + Loss

= ₹ 12000 + ₹ 1200

= ₹ 13200

Thus the C.P. is ₹ 13200. **Ans.**

d. S.P. = ₹ 1872.20, Loss = ₹ 212.80

∴ C.P. = S.P. + Loss

= ₹ 1872.20 + ₹ 212.80

= ₹ 2085

Thus the C.P. is ₹ 2085 **Ans.**

e. S.P. = ₹ 3250, Profit = ₹ 45.50

∴ C.P. = S.P. – Profit

= ₹ 3250 – ₹ 45.50

= ₹ 3204.50

Thus the C.P. is ₹ 3204.50 **Ans.**

f. S.P. = ₹ 1240.70, Loss = ₹ 111.75

∴ C.P. = S.P. + Loss

= ₹ 1240.70 + ₹ 111.75

= ₹ 1352.45

Thus the C.P. is ₹ 1352.45 **Ans.**

3. Find the selling price :

Ans. a. C.P. = ₹ 275, Loss = ₹ 32

∴ S.P. = C.P. – Loss

= ₹ 275 – ₹ 32 = ₹ 243

Thus the S.P. is ₹ 243. **Ans.**

b. C.P. = ₹ 850, Profit = ₹ 60

∴ S.P. = C.P. + Profit

= ₹ 850 + ₹ 60 = ₹ 910

Thus the S.P. is ₹ 910. **Ans.**

c. C.P. = ₹ 6000, Loss = ₹ 1800

∴ S.P. = C.P. – Loss

= ₹ 6000 – ₹ 1800

= ₹ 4200

Thus the S.P. is ₹ 4200. **Ans.**

d. C.P. = ₹ 800, Loss = ₹ 80.80

∴ S.P. = C.P. – Loss

= ₹ 800 – ₹ 80.80

= ₹ 719.20

Thus the S.P. is ₹ 719.20. **Ans.**

e. C.P. = ₹ 4325, Profit = ₹ 48.50

∴ S.P. = C.P. + Profit

= ₹ 4325 + ₹ 48.50

= ₹ 4373.50

Thus the S.P. is ₹ 4373.50. **Ans.**

f. C.P. = ₹ 925.50, Loss = ₹ 70.75

∴ S.P. = C.P. – Loss

= ₹ 925.50 – ₹ 70.75

= ₹ 854.75

Thus the S.P. is ₹ 854.75. **Ans.**

4. Solve the following word problems :

Ans. a. Cost price (C.P.) of the mobile = ₹ 2675

and Selling price (S.P.) of the mobile = ₹ 3629

∵ C.P. < S.P. so he made a profit.

Profit = S.P. – C.P.

= ₹ 3629 – ₹ 2675 = ₹ 954

Thus, the profit is ₹ 954. **Ans.**

b. Cost price (C.P.) of the pen = ₹ 17.50

and Selling price (S.P.) of the pen = ₹ 22.00

∵ S.P. > C.P. So, he made a profit

Now,

Profit = S.P. – C.P.

= ₹ 22.00 – ₹ 17.50 = ₹ 4.50

Thus, the profit is ₹ 4.50. **Ans.**

c. Cost price of the fan = ₹ 725.00

Loss = ₹ 50.00

then S.P. = Cost Price – Loss

= ₹ 725.00 – ₹ 50 = ₹ 625

Thus, the selling price is ₹ 675. **Ans.**

d. Cost price (C.P.) of the bicycle = ₹ 650.00

Profit = ₹ 75

∴ S.P. = C.P. + Profit

= ₹ 650 + ₹ 75 = ₹ 725

Thus, the selling price of the bicycle is ₹ 725. **Ans.**

Exercise-15.3

1. Find out the profit and profit percentage for each of these sales :

Ans. a. C.P. = ₹ 3000, S.P. = ₹ 3600

∵ S.P. > C.P., ∴ Profit

Profit = S.P. – C.P.

= ₹ 3600 – ₹ 3000 = ₹ 600

$$\text{Profit\%} = \frac{\text{Profit}}{\text{C.P.}} \times 100 = \frac{600}{3000} \times 100 = 20\%$$

Thus, profit ₹ 600 and profit is 20%. **Ans.**

b. C.P. = ₹ 2500, S.P. = ₹ 3000

∵ S.P. > C.P. ; ∴ Profit

Profit = ₹ 3000 – ₹ 2500 = ₹ 500

$$\text{Profit\%} = \frac{500}{2500} \times 100 = \frac{50000}{2500} = 20\%$$ **Ans.**

Thus, the profit is ₹ 500 and profit% is 20%. **Ans.**

c. C.P. = ₹ 700, S.P. = ₹ 850

Profit = S.P. – C.P.

$= ₹\ 850 - ₹\ 700 = ₹\ 150$

$\text{Profit\%} = \frac{150}{700} \times 100 = 21.42\%$

Thus, Profit is ₹ 150 and Profit% is 21.42%. **Ans.**

d. C.P. = ₹ 675, S.P. = ₹ 900

∵ S.P. > C.P. ; ∴ Profit.

$\text{Profit} = \text{S.P.} - \text{C.P.}$

$= ₹\ 900 - ₹\ 675 = ₹\ 225$

$\text{Profit\%} = \frac{₹\ 225}{₹\ 675} \times 100 = 33.33\%$ **Ans.**

Thus, Profit = ₹ 225; Profit% = 33.33%. **Ans.**

e. C.P. = ₹ 1000, S.P. = ₹ 1200

∵ S.P. > C.P. ; ∴ Profit.

$\text{Profit} = \text{S.P.} - \text{C.P.}$

$= ₹\ 1200 - ₹\ 1000 = ₹\ 200$

$\text{Profit\%} = \frac{₹\ 200}{₹\ 1000} \times 100 = 20\%$ **Ans.**

Thus, Profit = ₹ 200; Profit% = 20%. **Ans.**

f. C.P. = ₹ 75, S.P. = ₹ 85

∵ S.P. > C.P. ; ∴ Profit.

$\text{Profit} = \text{S.P.} - \text{C.P.}$

$= ₹\ 85 - ₹\ 75 = ₹\ 10$

$\text{Profit\%} = \frac{₹\ 10}{₹\ 75} \times 100 = 13.33\%$

Thus, Profit = ₹ 10 and Profit% = 13.33%. **Ans.**

2. Find out the loss percentage for each of these sales.

Ans. a. C.P. = ₹ 360, S.P. = ₹ 240

$\text{Loss} = \text{C.P.} - \text{S.P.}$

$= ₹\ 360 - ₹\ 240$

$= ₹\ 120$

$\text{Loss\%} = \frac{₹\ 120}{₹\ 360} \times 100$

$= 33.33\%$ **Ans.**

b. C.P. = ₹ 800, S.P. = ₹ 695

$\text{Loss} = \text{C.P.} - \text{S.P.}$

$= ₹\ 800 - ₹\ 695$

$= ₹\ 105$

$\text{Loss\%} = \frac{₹\ 105}{₹\ 800} \times 100$

$= 13.125\%$

Thus, Loss = ₹ 105, Loss% = 13.125%. **Ans.**

c. C.P. = ₹ 1200, S.P. = ₹ 780

$\text{Loss} = ₹\ 1200 - ₹\ 780 = ₹\ 420$

$\text{Loss\%} = \frac{₹\ 420}{₹\ 1200} \times 100$

$= 35\%$ **Ans.**

d. C.P. = ₹ 2250, S.P. = ₹ 1795

$\text{Loss} = ₹\ 2250 - ₹\ 1795 = ₹\ 455$

$\text{Loss\%} = \frac{₹\ 455}{₹\ 2250} \times 100$

$= 20.22\%$ **Ans.**

Thus, Loss = ₹ 455, Loss% = 20.22%. **Ans.**

e. C.P. = ₹ 3856, S.P. = ₹ 2642

$\text{Loss} = \text{C.P.} - \text{S.P.}$

$= ₹\ 3856 - ₹\ 2642 = ₹\ 1214$

f. C.P. = ₹ 9325, S.P. = ₹ 7895

∵ C.P. > S.P. ∴ Loss

$\text{Loss} = \text{C.P.} - \text{S.P.}$

$$\text{Loss\%} = \frac{₹\ 1214}{₹\ 3856} \times 100$$

$$= 31.48\%$$ **Ans.**

$$= ₹\ 9325 - ₹\ 7895 = ₹\ 1430$$

$$\text{Now Loss\%} = \frac{\text{Loss}}{\text{C.P.}} \times 100 = \frac{₹\ 1430}{₹\ 9325} \times 100$$

$$= 15.34\%$$ **Ans.**

Thus, Loss = ₹ 1430, Loss% = 15.34%. **Ans.**

Exercise-15.4

1. Read the following and solve.

Ans. a. Principal = ₹ 1800

Rate = 4%

Time = 5 years

$$\text{Simple Interest} = \frac{P \times R \times T}{100}$$

$$= \frac{₹\ 1800 \times 4 \times 5}{100} = ₹\ 360$$

Thus, the simple interest is ₹ 360. **Ans.**

b. Principal = ₹ 4000, Rate = 10%

Time = 3 years

$$\text{S.I} = \frac{P \times R \times T}{100}$$

$$= \frac{₹\ 4000 \times 10 \times 3}{100} = ₹\ 1200$$

Thus, the interest is ₹ 1200. **Ans.**

c. Principal = ₹ 1000

$$\text{Rate} = 3\frac{1}{2}\% = \frac{7}{2}\%$$

Time = 4 years

$$\text{S.I} = \frac{P \times R \times T}{100}$$

$$= \frac{₹\ 1000 \times 7 \times 4}{100 \times 2} = ₹\ 140$$

Thus, the simple interest is ₹ 140. **Ans.**

d. Principal = ₹ 8000

Rate = 8%

$$\text{Time} = 3\frac{1}{2} \text{ years} = \frac{7}{2} \text{ years}$$

$$\text{Simple Interest} = \frac{P \times R \times T}{100}$$

$$= \frac{₹\ 8000 \times 8 \times 7}{100 \times 2} = ₹2240$$

Thus, the simple interest is ₹ 2240. **Ans.**

2. Find the simple interest :

Ans.

Principal	Time	Rate per annum	Interest
₹ 1500	$1\frac{1}{2}$ years	5%	**₹ 112.50**
₹ 1200	$6\frac{1}{2}$ years	11%	**₹ 858**
₹ 2600	3 years	8%	**₹ 624**
₹ 5000	5 years	10%	**₹ 2500**
₹ 3000	2 years	6%	**₹ 360**
₹ 2500	3 years	$4\frac{1}{2}\%$	**₹ 337.50**
₹ 500	3 years	$2\frac{1}{2}\%$	**₹ 37.5**

₹ 8000	2 years	$7\frac{1}{2}\%$	**₹ 1200**
₹ 10,000	$2\frac{1}{2}$ years	8%	**₹ 2000**
₹ 6000	$2\frac{1}{2}$ years	$7\frac{1}{2}\%$	**₹ 1125**

MCQ

Tick (✔) the correct choice :

1. If S.P. = ₹ 440, Loss = ₹ 25, then C.P. =

   a. ₹ 565 b. ₹ 645 c. ₹ 465 ✓ d. ₹ 8415

2. If amount = ₹ 1600 and Interest = ₹ 130. Principal =

   a. ₹ 1570 b. ₹ 1470 ✓ c. ₹ 1730 d. ₹ 1800

3. If C.P. > S.P., we get :

   a. loss ✓ b. profit

   c. selling price d. cost price

4. Ramesh invested ₹ 5000 per 4 years at 4% per annum. How much interest will he get after 4 years?

   a. ₹ 800 ✓ b. ₹ 8000 c. ₹ 600 d. ₹ 6000

Worksheet

Take a look at some of the air fares. The rates are both for going and coming back, i.e. 'Return Fares'.

Solve the following :

1. A family of six members decided to go to Paris. They were given a concession of ₹ 1050 per ticket. How much money did they spend?

Ans. (₹ 6999 – ₹ 1050) × 6 = ₹ 35694

2. Mr and Mrs Sharma and their daughter Neera decided to go to London. Neera's uncle went to Singapore with his wife and son. What was the total fare paid by them all?

Ans. ₹ (3 × 16900) + ₹ (3 × 7500) = ₹ 73,200

3. Sunita decided to go to Frankfurt and paid for her ticket. She changed her mind and decided to go to Rome instead. Did she have to pay more or will she get back some money, and how much?

Ans. Money that she have to pay = ₹ 15,500 – 14999 = ₹ 501

4. Mr. Gupta paid ₹ 50,000 to the airlines for 5 tickets to Hongkong. Would any money be returned to him?

Ans. Yes! Money that he got back = ₹ 50,000 – ₹ 49,995 = ₹ 5

5. A group of 20 students decided to go for tour. Half of then went to Sydney and the rest went to New York. They were charged half the fare. How much did they pay?

Ans. Total money = ₹ (10 × 10500) + (10 × 11000) = ₹ 105,000 + ₹ 110000 = ₹ 215000

In Maths Lab

Ans. Do yourself