Exercise 1.3

Unit 1 · Real Numbers

1 **On his last bank statement, Qasim had a balance of Rs 1,75,000 in his checking account. He wrote one cheque for Rs 45,790 and another for Rs 1,12,921. What is his current balance?**

Balance in bank account = Rs 1,75,000

Amount of 1st cheque = Rs 45,790

Amount of 2nd cheque = Rs 1,12,921

Current balance = ?

Total amount withdrawn by cheques

= Rs 45,790 + Rs 1,12,921 = Rs 1,58,711

Current balance

= Rs 1,75,000 − Rs 1,58,711 = Rs 16,289

∴ Current balance = Rs 16,289

2 **Last week Wajid drove 283.4 km on 16.2 litres of petrol. He says that he averaged about 1.75 km per litre. Is his answer reasonable? Explain.**

Distance covered = 283.4 km

Petrol used = 16.2 litres

Wajid's estimate = 1.75 km/litre

$$\text{Actual average} = \frac{\text{distance covered}}{\text{petrol used}} = \frac{283.4 \text{ km}}{16.2 \text{ litres}}$$

= 17.49 km/litre ≈ 17.5 km/litre

∴ No, his answer is not reasonable.

The actual average is about 17.5 km per litre, which is 10 times his estimate of 1.75. He most likely put the decimal point in the wrong place.

3 **Salma bought 3.2 yards of fabric for a total price of Rs 139.2. How much did the fabric cost per yard?**

Length of fabric = 3.2 yards

Total price = Rs 139.2

$$\text{Cost per yard} = \frac{\text{total price}}{\text{length of fabric}} = \frac{\text{Rs } 139.2}{3.2}$$

$$= \frac{1392}{32} = \text{Rs } 43.5$$

∴ Cost of fabric = Rs 43.5 per yard

4 **Momina walks at 3.5 km/h. She took a 12 h walk. How far did she walk?**

Walking speed = 3.5 km/h
Walking time = 12 h
Distance = ?

$$\text{As we know, speed} = \frac{\text{distance}}{\text{time}}$$

so, distance = speed × time
= 3.5 km/h × 12 h = 42 km

∴ She walked 42 km.

5 **The hiking club went on a 7-day trip. Each day they hiked between 5.5 and 7.5 miles. It is reasonable to assume that during the 7 days the club hiked:**

(a) less than 35 miles (b) between 35 and 55 miles
(c) exactly 55 miles (d) more than 55 miles

Number of days = 7
Distance each day = between 5.5 and 7.5 miles
Least distance in 7 days = 7 × 5.5 = 38.5 miles
Greatest distance in 7 days = 7 × 7.5 = 52.5 miles
So in 7 days they hiked between 38.5 and 52.5 miles, which lies between 35 and 55 miles.

∴ Option (b) is reasonable.

6 **For a class party, the student council purchased 42 balloons at Rs 1.85 each. What is the total amount the student council paid for the balloons?**

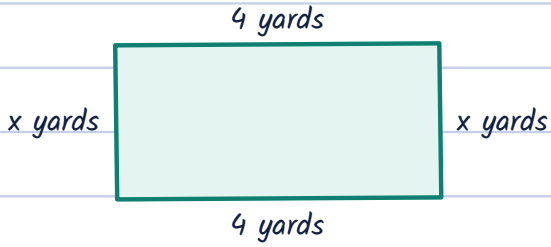
Number of balloons = 42

Price of each balloon = Rs 1.85

Total amount = 42 × Rs 1.85 = Rs 77.70

∴ The council paid Rs 77.70.

7 **A group of friends made a 4-yard long rectangular banner. They paid Rs 3.75 per yard for the fabric and Rs 9 for the film to go around the banner, a 10-yard perimeter. What was the width of the banner?**



Length of banner (l) = 4 yards

Perimeter of banner (P) = 10 yards

Width of banner (w) = ?

Let the width of the banner = x yards

Perimeter of rectangle = 2(l + w)

$10 = 2(4 + x)$

$10 = 8 + 2x$

$10 - 8 = 2x \Rightarrow 2 = 2x \Rightarrow x = 1$

∴ Width of the banner = 1 yard

The prices (Rs 3.75 per yard and Rs 9) are extra information; they are not needed to find the width.

8 **A shoe factory has assets of Rs 2,000,000, of which 3/5 is the capital and the rest is the debt. Find the amount of capital and debt. (Asset = capital + debt)**

Total assets of factory = Rs 2,000,000

Capital = $\frac{3}{5}$ of Rs 2,000,000 = $\frac{3}{5}$ × 2,000,000

= 3 × 400,000 = Rs 1,200,000

Debt = total assets − capital

= Rs 2,000,000 − Rs 1,200,000 = Rs 800,000

∴ Capital = Rs 1,200,000 and Debt = Rs 800,000

9 **The world's lowest temperature in the past 100 years was recorded to be −89.2 °C at Vostok, Antarctica, on July 21, 1983. Convert this temperature into the Fahrenheit and Kelvin scales.**

Formulas: $F = \frac{9}{5}C + 32$ and $K = C + 273$

Recorded temperature (C) = −89.2 °C

(a) In the Fahrenheit scale

$F = \frac{9}{5}C + 32 = \frac{9}{5}(-89.2) + 32$

$F = -160.56 + 32 = -128.56$

∴ −89.2 °C = −128.56 °F

(b) In the Kelvin scale

$K = C + 273 = -89.2 + 273 = 183.8$

∴ −89.2 °C = 183.8 K

10 **A company was penalized by the government for low-quality production. The company has 3 shareholders, Farah, Maryam and Tehreem, investing in the ratio 1 : 2 : 3, and the penalty is Rs 456,868.97. Find the amount of penalty paid by each of the 3 shareholders.**

Total penalty = Rs 456,868.97

Farah : Maryam : Tehreem = 1 : 2 : 3

Sum of the ratios = 1 + 2 + 3 = 6

Farah's share = $\frac{1}{6}$ × 456,868.97 = Rs 76,144.83

$$\text{Maryam's share} = \frac{2}{6} \times 456{,}868.97 = \text{Rs } 152{,}289.66$$

$$\text{Tehreem's share} = \frac{3}{6} \times 456{,}868.97 = \text{Rs } 228{,}434.49$$

$\therefore$ Farah pays Rs 76,144.83 and Maryam pays Rs 152,289.66

$\therefore$ Tehreem pays Rs 228,434.49

Each answer is rounded to the nearest paisa (2 decimal places).