Exercise 8.1

Question 1:
Find the ratio of:

    (a) ₹5 to 50 paise   (b) 15 kg to 210 g

    (c) 9 m to 27 cm   (d) 30 days to 36 hours

Answer 1:
To find ratios, both quantities should be in same unit.

    (a) ₹5 to 50 paise

        $\Rightarrow$ 5 x 100 paise to 50 paise   [∵ ₹ 1 = 100 paise]

        $\Rightarrow$ 500 paise to 50 paise

    Thus, the ratio is = $\dfrac{500}{50} = \dfrac{10}{1}$ = 10 : 1

    (b) 15 kg to 210 g

        $\Rightarrow$ 15 x 1000 g to 210 g   [∵ 1 kg = 1000 g]

        $\Rightarrow$ 15000 g to 210 g

    Thus, the ratio is = $\dfrac{15000}{210} = \dfrac{500}{7}$ = 500 : 7

    (c) 9 m to 27 cm

        $\Rightarrow$ 9 x 100 cm to 27 cm   [∵ 1 m = 100 cm]

        $\Rightarrow$ 900 cm to 27 cm

    Thus, the ratio is = $\dfrac{900}{27} = \dfrac{100}{3}$ = 100 : 3

    (d) 30 days to 36 hours

        $\Rightarrow$ 30 x 24 hours to 36 hours   [∵ 1 day = 24 hours]

        $\Rightarrow$ 720 hours to 36 hours

    Thus, the ratio is = $\dfrac{720}{36} = \dfrac{20}{1}$ = 20 : 1

Question 2:

In a computer lab, there are 3 computers for every 6 students. How many computers will be needed for 24 students?

Answer 2:

$\because$ 6 students need = 3 computers

$\therefore$ 1 student needs = $\dfrac{3}{6}$ computers

$\therefore$ 24 students need = $\dfrac{3}{6} \times 24$ = 12 computers

Thus, 12 computers will be needed for 24 students.

Question 3:

Population of Rajasthan = 570 lakhs and population of U.P. = 1660 lakhs. Area of Rajasthan = 3 lakh km² and area of U.P. = 2 lakh km².

    (i)   How many people are there per km² in both states?

    (ii)   Which state is less populated?

Answer 3:

    (i)   People present per km² = $\dfrac{\text{Population}}{\text{Area}}$

             In Rajasthan = $\dfrac{570 \text{ lakhs}}{3 \text{ lakhs per km}^2}$ = 190 people km²

             In U.P. = $\dfrac{1660 \text{ lakhs}}{2 \text{ lakh per km}^2}$ = 830 people per km²

    (ii)   Rajasthan is less populated.