Unit 7 · Simple Interest

HARDER PRACTICE QUESTIONS

Full marks 28

Write your answers on separate paper. Show your working. All the interest here is simple interest, and the banks and rates are made up for the problems.

1 Doubling [3]

A sum of money doubles in 8 years.

i. What is the rate of interest?
ii. How long does a sum take to become three times itself at that rate?
iii. What does Rs 7,500 become in 5 years at that rate?

2 Split in two [4]

Rs 50,000 is deposited in two parts, one at 6% a year and the rest at 8% a year. The yearly interest from the two parts together is Rs 3,400. How much is in each part?

3 The wrong entry [3]

A deposit earns simple interest and nothing is taken out. A passbook shows the amount at the end of each year, but one number is wrong.

After (years)	1	2	3	4
Amount (Rs)	5,400	5,800	6,250	6,600

Which entry is wrong, and what should it be? What were the principal and the rate?

4 Spot the error [3]

Find the mistake and correct it.

Nirajan found the interest on Rs 24,000 at 9% a year for 9 months: "$I = \frac{24000 \times 9 \times 9}{100} = \text{Rs } 19{,}440$." Why should the size of his answer have warned him? Correct it.

5 Which loan? [4]

Aayusha needs Rs 5,00,000 for 18 months. Bank A charges 12% a year. A cooperative charges 11% a year, and takes 1% of the loan as a service charge at the start.

i. What does each loan cost her in all, in interest and charges?
ii. Which is cheaper, and by how much?
iii. For which loan period would the two cost the same?

6 After the tax [3]

A depositor receives Rs 3,800 as interest after 5% tax on the interest has been taken. The money was in a bank for 2 years at 8% a year. How much did she deposit?

7 In a real setting [3]

A cooperative takes deposits of Rs 2,50,000 from its members at 8% a year and lends the same money to farmers at 11% a year. What does it gain in 2 years 6 months? What percent of the interest it receives is that?

8 Think [3]

Which of these changes keep the interest the same? Explain using $I = \frac{P \times T \times R}{100}$.

i. Swapping the rate and the time: 5% for 8 years instead of 8% for 5 years.
ii. Doubling the rate and halving the principal.
iii. Doubling the time and doubling the rate.

9 Make your own [2]

Choose a principal and a rate so that the interest is exactly Rs 1,200 in 1 year 6 months. Then find another pair that gives the same interest in the same time. What must be true of $P \times R$ in every such pair?