Unit 2 · Compound Interest

HARDER WORKSHEET

Full marks 24

Name _____ Class _____ Roll no. _____ Date _____ Marks _____ / 24

1 Find the unknown [3]

Solve the following problem. Show your working.

On the same sum at the same yearly rate, the simple interest for 2 years is Rs 2,400 and the compound interest (added yearly) for 2 years is Rs 2,520. Find the rate and the sum.

Answer: _____

2 Which is better? [3]

Answer the following question. Show your working.

Bank P offers 12% a year, interest added yearly. Bank Q offers 11.7% a year, interest added quarterly. Which gives more on Rs 2,00,000 in 2 years, and by how much?

Answer: _____

3 Is the claim true? [3]

Answer the following question. Give a reason.

A cooperative's poster says: "Deposit Rs 1,00,000 at 10% a year, interest added half-yearly, and in 7 years you will have Rs 2,00,000!" Is the poster right? About how much more time is needed to double the money?

4 Spot the error [3]

Find the mistake in the working and correct it.

Rs 40,000 is deposited for 2 years at 10% a year, compounded yearly, and 5% tax is taken from the interest at the end of each year. Bina worked out the amount without tax, $40000 \times 1.1^2 = 48400$, then took 5% of the whole amount, $48400 \times 0.95 = 45980$, and wrote "**the amount after tax is Rs 45,980**".

5 Show it [3]

Answer the following question.

A sum amounts to A_2 in 2 years and A_3 in 3 years at R% a year, compounded yearly. Show that $R = \frac{A_3 - A_2}{A_2} \times 100$. Then use it for $A_2 =$ Rs 6,050 and $A_3 =$ Rs 6,655.

6 Work backwards [3]

Solve the following problem. Show your working.

A deposit earns 10% a year, compounded yearly, and 5% tax is taken from each year's interest. After 2 years the amount is Rs 59,951.25. How much was deposited?

Answer: _____

7 In a real setting [4]

Solve the following problem. Show your working.

A farmer borrows Rs 21,000 from a cooperative at 10% a year, compounded yearly, to buy goats. He pays back the loan in two equal payments, one at the end of each year, and after the second payment he owes nothing. How much is each payment?

Answer: _____

8 Make your own [2]

Answer the following question.

Choose a sum and a yearly rate so that the compound interest for 2 years (added yearly) is exactly Rs 50 more than the simple interest for 2 years. Show that your numbers fit.