Class - 8th
Subject - math
Date - 23/01/2024

Lesson - 10 (Compound interest)

* To Find compound interest when interest is compounded half-yearly

Exp(i) Find the compound interest on ₹ 6000 for $1\frac{1}{2}$ years at 10% per annum, interest being paid half-yearly.

Solution:- Principal = ₹ 6000

Rate of interest = 10% per annum = 5% per half year

Time = $1\frac{1}{2}$ years = 3 half-years

Interest for the first half-year = ₹ $\left(\frac{6000 \times 5 \times 1}{100}\right)$

= ₹ 300

Amount at the end of first half year = ₹ (6000 + 300)

= ₹ 6300

Interest for the Second half-year = ₹ $\left(\frac{6300 \times 5 \times 1}{100}\right)$

= ₹ 315

Amount at the end of Second half year = ₹ (6300 + 315)

= ₹ 6615

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Principal for the third half-year = ₹ 6615

Interest for the third half-year = ₹ $\left(\frac{6615 \times 5 \times 1}{100}\right)$

= ₹ 330.75

Amount at the end of third half-year = ₹ (6615 + 330.75)

= ₹ 6945.75

∴ compound interest = ₹ (6945.75 − 6000)

= ₹ 945.75

* To Find compound interest when interest is compounded quarterly.

If the rate of interest is R% per annum and the interest is compounded quarterly then the rate is $\frac{R}{4}$% per quarter.

Eg b(ii) ∴ Find the compound interest on ₹ 8000 for 1 year at 20% per annum. Interest being paid quarterly.

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Solution :- Principal = ₹ 8000

Rate of interest = 20% per annum = 5% per quarter.

Time = 1 year = 4 quarter.

Interest for the first quarter = ₹ $\left(\frac{8000 \times 5 \times 1}{100}\right)$

= ₹ 400

Amount at the end of first quarter = ₹ (8000 + 400)

= ₹ 8400

Principal for the Second quarter = ₹ 8400

Interest for the Second quarter = ₹ $\left(\frac{8400 \times 5 \times 1}{100}\right)$

= ₹ 420

Amount at the end of Second quarter = ₹ (8400 + 420)

= ₹ 8820

Principal for the third quarter = ₹ 8820

Interest for the third quarter = ₹ $\left(\frac{8820 \times 5 \times 1}{100}\right)$

= ₹ 441

Amount at the end of third quarter

= ₹ (8820 + 441)

= ₹ 9261

Principal for 4th quarter = ₹ 9261

Interest for 4th quarter = ₹ $\left(\frac{9261 \times 5 \times 1}{100}\right)$

= ₹ 463.05

Amount at the end of 4th quarter

= ₹ (9261 + 463.05)

= ₹ 9724.05

∴ Compound interest = ₹ (9724.05 - 8000)

= ₹ 1724.05

H:W

Exercise 10.1

Question No - 2, 3, 4, 5 and 6 are Complete.