COMPOUND INTEREST

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CONCEPT

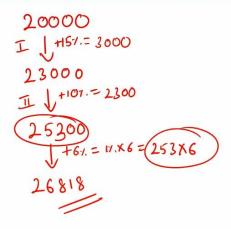
Compound Interest (C. I.)

In case of compound interest, principal keeps changing. The principal at a beginning of particular period is the sum of the principal at the beginning of the previous period and the interest accrued in that period.

Let Principal = P, Rate = R% per annum, Time = T years.

$$A = P \left(1 + \frac{R}{100} \right)$$
 $CI = A - P$
 $CI = A - P$

9. Find the amount on a sum of 20000 after 3 years if the compound interest rate offered for the 1st, 2nd and 3rd year was 15%, 10% and 6% respectively. X 23818 **B**. 23000 **×**. 26200 D. 2681.8



10. The compound interest on Rs. 30,000 at 7% p.a. is Rs. 4347. The period (in years) is

(A) 3 years

3 4 years

2 years 1 year

- II. What will Rs. 2000 amount to in two years if it is invested in 20% p.a. compound interest, interest being compounded semiannually?
- A) Rs. 2880
- B) Rs. 3160
- Rs. 2928.20
- D) Rs. 3148.40

- B
- 12. Tyrion invests Rs. 5000 for three years at a certain rate of interest, compounded annually. At the end of one year it amounts to Rs. 5600. Calculate the amount due at end of the second year.
- A) Rs.6200
- B) Rs.6272
- C) Rs.6260
- D) Rs.6320

$$A_{1}=5600 \quad P=5000 \quad SI_{1}=600$$

$$R=\frac{600\times100}{5000\times1}=12\%$$

$$5600$$

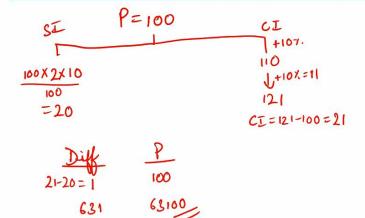
$$\sqrt{+12\%}=10\%+1\%+1\%$$

$$-560+56+56$$

$$6272$$

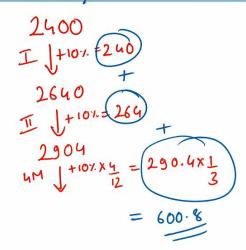
13. The difference between the CI and SI on a certain sum at 10% per annum for 2 years is Rs. 631. Find the sum.

- A) Rs. 63100
- B) Rs. 6310
- C) Rs. 63200
- D) Rs. 63000



- 14. Find the compound interest (reckoned yearly) on Rs. 2400 at 10% p.a. for 2 years 4 months.
- (A) Rs. 3000.80
- Rs. 400.80
- (C) Rs. 600.80
-) Rs. 700

B



15. If the amount becomes 6 1/4 times of the principal after 2 years of CI, the rate of interest p.a. is

- A) 115%
- B) 150%
- D) 105%

$$A = P\left(\frac{1+R}{100}\right)$$

$$6.25R = P\left(\frac{1+R}{100}\right)$$

$$(1+R)^{2} - 625 - (25)$$
Use formula only when Rate NOT given

$$\begin{pmatrix}
1 + R & 2 & 625 & 625 & 625 & 625 & 625 & 625 & 625 & 625 & 625 & 625 & 625 & 625 & 625 & 625 & 625 & 625 & 625 & 625 & 625 & 625 & 625 & 625 & 625 & 625 & 625 & 625 & 625 & 625 & 625 & 625 & 625 & 625 & 625 & 625 & 625 & 625 & 625 & 625 & 625 & 625 & 625 & 625 & 625 & 625 & 625 & 625 & 625 & 625 & 625 & 625 & 625 & 625 & 625 & 625 & 625 & 625 & 625 & 625 & 625 & 625 & 625 & 625 & 625 & 625 & 625 & 625 & 625 & 625 & 625 & 625 & 625 & 625 & 625 & 625 & 625 & 625 & 625 & 625 & 625 & 625 & 625 & 625 & 625 & 625 & 625 & 625 & 625 & 625 & 625 & 625 & 625 & 625 & 625 & 625 & 625 & 625 & 625 & 625 & 625 & 625 & 625 & 625 & 625 & 625 & 625 & 625 & 625 & 625 & 625 & 625 & 625 & 625 & 625 & 625 & 625 & 625 & 625 & 625 & 625 & 625 & 625 & 625 & 625 & 625 & 625 & 625 & 625 & 625 & 625 & 625 & 625 & 625 & 625 & 625 & 625 & 625 & 625 & 625 & 625 & 625 & 625 & 625 & 625 & 625 & 625 & 625 & 625 & 625 & 625 & 625 & 625 & 625 & 625 & 625 & 625 & 625 & 625 & 625 & 625 & 625 & 625 & 625 & 625 & 625 & 625 & 625 & 625 & 625 & 625 & 625 & 625 & 625 & 625 & 625 & 625 & 625 & 625 & 625 & 625 & 625 & 625 & 625 & 625 & 625 & 625 & 625 & 625 & 625 & 625 & 625 & 625 & 625 & 625 & 625 & 625 & 625 & 625 & 625 & 625 & 625 & 625 & 625 & 625 & 625 & 625 & 625 & 625 & 625 & 625 & 625 & 625 & 625 & 625 & 625 & 625 & 625 & 625 & 625 & 625 & 625 & 625 & 625 & 625 & 625 & 625 & 625 & 625 & 625 & 625 & 625 & 625 & 625 & 625 & 625 & 625 & 625 & 625 & 625 & 625 & 625 & 625 & 625 & 625 & 625 & 625 & 625 & 625 & 625 & 625 & 625 & 625 & 625 & 625 & 625 & 625 & 625 & 625 & 625 & 625 & 625 & 625 & 625 & 625 & 625 & 625 & 625 & 625 & 625 & 625 & 625 & 625 & 625 & 625 & 625 & 625 & 625 & 625 & 625 & 625 & 625 & 625 & 625 & 625 & 625 & 625 & 625 & 625 & 625 & 625 & 625 & 625 & 625 & 625 & 625 & 625 & 625 & 625 & 625 & 625 & 625 & 625 & 625 & 625 & 625 & 625 & 625 & 625 & 625 & 625 & 625 & 625 & 625 & 625 & 625 & 625 & 625 & 625 & 625 & 625 & 625 & 625 & 625 & 625 & 625 & 625 & 625 & 625 & 625 & 625 & 625 & 625 & 625 & 625 & 625 & 625 & 625 & 625 & 625 & 6$$

$$1+R = 25$$

$$\frac{R}{100} = \frac{25}{10} - 1 = \frac{15}{10}$$

16. The compound interest on a certain sum for 2 years at 10% per annum is Rs. 525. The simple interest on the same sum for double the time at half the rate percent per annum is

2500

P=100 V+101. 110 J+107.=11 121

$$\begin{array}{c|c}
CI = 121 - 100 = 21 \\
\hline
CI & P & P = 100 \times 525 \\
\hline
21 & = 2500 \\
\hline
S1 = 2500 \times 4 \times 5 = 500 \\
\hline
100 = 500
\end{array}$$

$$SI = \frac{2560 \times 4 \times 5}{100} = \frac{500}{100}$$

17. A sum of money at compound interest doubled at a certain rate in 4 years. In how many years will it become 8 times at the same rate?

A) 24

√B) 12

C) 16

D) 18

$$P \Rightarrow \times 2 \qquad \longrightarrow 4 \text{ years}$$

$$\times 2^{n} \qquad \longrightarrow 4 \times n \text{ years}$$

$$\times 2^{2} \qquad \longrightarrow 4 \times 2 \text{ years}$$

$$\times 2^{3} \qquad \longrightarrow 4 \times 3 = 12 \text{ years}$$

$$A = P\left(1 + \frac{R}{100}\right) 4$$

$$2R = R\left(1 + \frac{R}{100}\right) 4$$

$$2^{3} = \left(1 + \frac{R}{100}\right)^{4} = \left(1 + \frac{R}{100}\right)$$

$$2^{n} = \left(1 + \frac{R}{100}\right)^{4} = 100$$

$$2^{n} = \left(1 + \frac{R}{100}\right)$$

18. A sum of money was put at SI at a certain rate for 2 years. Had it been at 1% higher rate, it would have fetched Rs. 24 more. Find the sum.

A) Rs. 2400

B) Rs. 1200

C) Rs. 4800

D) Rs. 600

19. There is 60% increase in an amount in 6 years at simple interest. What will be the compound interest on Rs. 12,000 after 3 years at the same rate?

- A) Rs. 2160
- B) Rs. 3120
- (C) Rs. 3972
- D) Rs. 6240

$$R = \frac{60\%}{6} = 10\%,$$

$$12000$$

$$V + 10\% = 1200$$

$$13200$$

20. Find the compound interest on 5000 @ 10% for a period of a year compounded half yearly?

A. 500

- B. 512.5
- C. 450
- D. 665

5000 $\sqrt{+57.} = 250$ 5250 $\sqrt{+56} = 262.5$ 512.5