SIMPLE INTREST

1. A sum of money at simple interest amounts to Rs. 815 in 3 years and to Rs. 854 in 4 years. The sum is:

   A. Rs. 650

   B. Rs. 690

   C. Rs. 698

   D. Rs. 700

   Answer: Option **C**
   Explanation:

   S.I. for 1 year = Rs. (854 - 815) = Rs. 39.

   S.I. for 3 years = Rs.(39 x 3) = Rs. 117.

   ∴ Principal = Rs. (815 - 117) = Rs. 698.

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2. Mr. Thomas invested an amount of Rs. 13,900 divided in two different schemes A and B at the simple interest rate of 14% p.a. and 11% p.a. respectively. If the total amount of simple interest earned in 2 years be Rs. 3508, what was the amount invested in Scheme B?

   A. Rs. 6400

   B. Rs. 6500

   C. Rs. 7200

   D. Rs. 7500

   E. None of these

   Answer: Option **A**
   Explanation:
   Let the sum invested in Scheme A be Rs. x and that in Scheme B be Rs. (13900 - x).
   Then, $\left(\frac{x \times 14 \times 2}{100}\right) + \left(\frac{(13900 - x) \times 11 \times 2}{100}\right) = 3508$
   $\Rightarrow 28x - 22x = 350800 - (13900 \times 22)$
   $\Rightarrow 6x = 45000$
   $\Rightarrow x = 7500.$

   So, sum invested in Scheme B = Rs. (13900 - 7500) = Rs. 6400.

   Video Explanation: https://youtu.be/Xi4kU9y6ppk
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3. A sum fetched a total simple interest of Rs. 4016.25 at the rate of 9 p.c.p.a. in 5 years. What is the sum?

A. Rs. 4462.50

B. Rs. 8032.50

C. Rs. 8900

D. Rs. 8925

E. None of these

Answer: Option **D**
Explanation:

Principal = Rs. $\left(\frac{100 \times 4016.25}{9 \times 5}\right)$

= Rs. $\left(\frac{401625}{45}\right)$

= Rs. 8925.

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4. How much time will it take for an amount of Rs. 450 to yield Rs. 81 as interest at 4.5% per annum of simple interest?

A. 3.5 years

B. 4 years

C. 4.5 years

D. 5 years

Answer: Option **B**
Explanation:

Time = $\left(\frac{100 \times 81}{450 \times 4.5}\right)$ years = 4 years.

Video Explanation: https://youtu.be/WdBzN0Sj8jc
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5. Reena took a loan of Rs. 1200 with simple interest for as many years as the rate of interest. If she paid Rs. 432 as interest at the end of the loan period, what was the rate of interest?

A. 3.6

B. 6

C. 18

D. Cannot be determined

E. None of these

Answer: Option **B**
Explanation:

Let rate = R% and time = R years.

Then, $\left(\frac{1200 \times R \times R}{100}\right) = 432$

$\Rightarrow 12R^2 = 432$

$\Rightarrow R^2 = 36$

$\Rightarrow R = 6.$

.6. A sum of Rs. 12,500 amounts to Rs. 15,500 in 4 years at the rate of simple interest. What is the rate of interest?

A. 3%

B. 4%

C. 5%

D. 6%

E. None of these

Answer: Option **D**
Explanation:

S.I. = Rs. (15500 - 12500) = Rs. 3000.

Rate = $\left(\frac{100 \times 3000}{12500 \times 4}\right)\%$ = 6%

Video Explanation: https://youtu.be/SIcQu1HOmOk
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7. An automobile financier claims to be lending money at simple interest, but he includes the interest every six months for calculating the principal. If he is charging an interest of 10%, the effective rate of interest becomes:

A. 10%

B. 10.25%

C. 10.5%

D. None of these

Answer: Option **B**
Explanation:

Let the sum be Rs. 100. Then,

S.I. for first 6 months = Rs. $\left(\frac{100 \times 10 \times 1}{100 \times 2}\right)$ = Rs. 5

S.I. for last 6 months = Rs. $\left(\frac{105 \times 10 \times 1}{100 \times 2}\right)$ = Rs. 5.25

So, amount at the end of 1 year = Rs. (100 + 5 + 5.25) = Rs. 110.25

$\therefore$ Effective rate = (110.25 - 100) = 10.25%

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8. A lent Rs. 5000 to B for 2 years and Rs. 3000 to C for 4 years on simple interest at the same rate of interest and received Rs. 2200 in all from both of them as interest. The rate of interest per annum is:

A. 5%

B. 7%

C. $7\frac{1}{8}\%$

D. 10%

Answer: Option **D**

Explanation:

Let the rate be R% p.a.

Then, $\left(\frac{5000 \times R \times 2}{100}\right) + \left(\frac{3000 \times R \times 4}{100}\right) = 2200.$

$\Rightarrow$ 100R + 120R = 2200

$\Rightarrow$ R = $\left(\frac{2200}{220}\right)$ = 10.

$\therefore$ Rate = 10%.

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9. A sum of Rs. 725 is lent in the beginning of a year at a certain rate of interest. After 8 months, a sum of Rs. 362.50 more is lent but at the rate twice the former. At the end of the year, Rs. 33.50 is earned as interest from both the loans. What was the original rate of interest?

A. 3.6%

B. 4.5%

C. 5%

D. 6%

E. None of these

Answer: Option **E**

Explanation:

Let the original rate be R%. Then, new rate = (2R)%.

Note:

Here, original rate is for 1 year(s); the new rate is for only 4 months i.e. $\frac{1}{3}$ year(s).

$\therefore \left(\frac{725 \times R \times 1}{100}\right) + \left(\frac{362.50 \times 2R \times 1}{100 \times 3}\right) = 33.50$

$\Rightarrow$ (2175 + 725) R = 33.50 x 100 x 3

$\Rightarrow$ (2175 + 725) R = 10050

$\Rightarrow$ (2900)R = 10050

$\Rightarrow R = \frac{10050}{2900} = 3.46$

$\therefore$ Original rate = 3.46%

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10. A man took loan from a bank at the rate of 12% p.a. simple interest. After 3 years he had to pay Rs. 5400 interest only for the period. The principal amount borrowed by him was:

A. Rs. 2000

B. Rs. 10,000

C. Rs. 15,000

D. Rs. 20,000

Answer: Option **C**

Explanation:

Principal = Rs. $\left(\frac{100 \times 5400}{12 \times 3}\right)$ = Rs. 15000.

11. A sum of money amounts to Rs. 9800 after 5 years and Rs. 12005 after 8 years at the same rate of simple interest. The rate of interest per annum is:

A. 5%

B. 8%

C. 12%

D. 15%

Answer: Option **C**

Explanation:

S.I. for 3 years = Rs. (12005 - 9800) = Rs. 2205.

S.I. for 5 years = Rs. $\left(\frac{2205}{3} \times 5\right)$ = Rs. 3675

$\therefore$ Principal = Rs. (9800 - 3675) = Rs. 6125.

Hence, rate = $\left(\frac{100 \times 3675}{6125 \times 5}\right)\%$ = 12%

Video Explanation: https://youtu.be/UYwiBCRN39s
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12. What will be the ratio of simple interest earned by certain amount at the same rate of interest for 6 years and that for 9 years?

A. 1 : 3

B. 1 : 4

C. 2 : 3

D. Data inadequate

E. None of these

Answer: Option **C**
Explanation:

Let the principal be P and rate of interest be R%.

$\therefore$ Required ratio = $\frac{\left(\frac{P \times R \times 6}{100}\right)}{\left(\frac{P \times R \times 9}{100}\right)} = \frac{6PR}{9PR} = \frac{6}{9}$ = 2 : 3.

Video Explanation: https://youtu.be/GaaEDwTWc6w
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13. A certain amount earns simple interest of Rs. 1750 after 7 years. Had the interest been 2% more, how much more interest would it have earned?

A. Rs. 35

B. Rs. 245

C. Rs. 350

D. Cannot be determined

E. None of these

Answer: Option **D**
Explanation:

We need to know the S.I., principal and time to find the rate.

Since the principal is not given, so data is inadequate.

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14. A person borrows Rs. 5000 for 2 years at 4% p.a. simple interest. He immediately lends it to another person at $6\frac{1}{4}$% p.a for 2 years. Find his gain in the transaction per year.

A. Rs. 112.50

B. Rs. 125

C. Rs. 225

D. Rs. 167.50

Answer: Option **A**

Explanation:

Gain in 2 years $= \text{Rs.} \left[\left(5000 \times \frac{25}{4} \times \frac{2}{100}\right) - \left(\frac{5000 \times 4 \times 2}{100}\right)\right]$

$= \text{Rs.}\ (625 - 400)$

$= \text{Rs.}\ 225.$

$\therefore$ Gain in 1 year $= \text{Rs.} \left(\frac{225}{\quad}\right) = \text{Rs.}\ 112.50$