



# ST. LAWRENCE HIGH SCHOOL



A JESUIT CHRISTIAN MINORITY INSTITUTION

**CLASS 8**

**SUBJECT : Arithmetic**

**Work sheet 13 answer key**

**Marks:15**

**Simple Interest**

**Date:21.4.2020**

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**Answer all the following questions(1×15=15)**

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
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
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
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
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
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%
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
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%
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. 3.46%

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
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%
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
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
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

15. What is the rate of simple interest?

- I. The total interest earned was Rs. 4000.
- II. The sum was invested for 4 years.

- A. I alone sufficient while II alone not sufficient to answer
- B. II alone sufficient while I alone not sufficient to answer
- C. Either I or II alone sufficient to answer
- D. Both I and II are not sufficient to answer

1. **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.

2. **Answer:** Option A

**Explanation:**

Let the sum invested in Scheme A be Rs. x and that in Scheme B be Rs. (13900 - x).

$$\text{Then } \left( \frac{x \times 14 \times 2}{100} \right) + \left( \frac{(13900 - x) \times 11 \times 2}{100} \right) = 3508$$

$$\Rightarrow 28x - 22x = 350800 - (13900 \times 22)$$

$$\Rightarrow 6x = 45000$$

$$\Rightarrow x = 7500.$$

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

3. **Answer:** Option D

**Explanation:**

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

$$= \text{Rs. } \left( \frac{40162}{5} \right)$$

$$= \text{Rs. 8925.}$$

4. **Answer:** Option B

**Explanation:**

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

5. **Answer:** Option B

**Explanation:**

Let rate = R% and time = R years.

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

$$\Rightarrow 12R^2 = 432$$

$$\Rightarrow R^2 = 36$$

$$\Rightarrow R = 6.$$

6. **Answer:** Option D

**Explanation:**

$$\text{S.I.} = \text{Rs. } (15500 - 12500) = \text{Rs. } 3000.$$

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

7. **Answer:** Option B

**Explanation:**

Let the sum be Rs. 100. Then,

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

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

So, amount at the end of 1 year = Rs.  $(100 + 5 + 5.25) = \text{Rs. } 110.25$

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

8. **Answer:** Option D

**Explanation:**

Let the rate be R% p.a.

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

$$\Rightarrow 100R + 120R = 2200$$

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

$$\therefore \text{Rate} = 10\%.$$

9. **Answer:** Option D

**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).

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

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

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

$$\Rightarrow (2900)R = 10050$$

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

$\therefore$  Original rate = 3.46%

10. **Answer:** Option C

**Explanation:**

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

11. **Answer:** Option C

**Explanation:**

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

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

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

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

12. **Answer:** Option C

**Explanation:**

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

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

13. **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.

14. **Answer:** Option **A**

**Explanation:**

$$\text{Gain in 2 years} = \text{Rs.} \left[ \left( 5000 \times \frac{25}{4} \times \frac{2}{10} \right) - \left( \frac{5000 \times 4 \times 2}{100} \right) \right]$$

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

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

$$\therefore \text{Gain in 1 year} = \text{Rs.} \left( \frac{225}{2} \right) = \text{Rs.} 112.50$$

15. **Answer:** Option **D**

**Explanation:**

$$\text{We know that, } R = \left( \frac{100 \times \text{S.I.}}{P \times T} \right)$$

Now, I gives, S.I. = Rs. 4000.

It gives, T = 4 years.

But, P is unknown. So, we cannot find R.

So, given data is insufficient to get R.

$\therefore$  Correct answer is (D).

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