

JSS3 MATHEMATICS: LESSON ON WEEK 10 and 11

TOPIC: SIMPLE INTEREST

OBJECTIVES: BY THE END OF THIS LESSON, STUDENTS SHOULD BE ABLE TO;

1. KNOW AND USE SIMPLE INTEREST TERMINOLOGY
2. KNOW AND USE FORMULA FOR, CALCULATING SIMPLE INTEREST
3. UNDERSTAND WHEN INTEREST IS PAID AND WHEN INTEREST IS EARNED.

DEFINITION; SIMPLE INTEREST IS A QUICK AND EASY METHOD OF CALCULATING THE INTEREST CHARGE ON A LOAN

APPLICATION; SIMPLE INTEREST CAN BE APPLIED;

- WHEN MAKING MORE THAN YOUR MINIMUM MONTHLY PAYMENT AND WHEN MAKING EXTRA PAYMENT TOWARD YOUR PRINCIPAL
 - IT USUALLY INVOLVE EITHER INVESTING MONEY OR BORROWING MONEY
- LOANS THAT MIGHT FEATURE SIMPLE INTEREST INCLUDE AUTO LOANS, INSTALLMENT LOANS, STUDENT LOANS AND MORTGAGES.

FORMULA: I = INTEREST P = PRINCIPAL T = TIME R = RATE

WHEN ASKED TO FIND INTEREST (I), USE THE FORMULA;

$$I = \frac{P \times T \times R}{100}$$

WHEN FINDING THE PRINCIPAL (P) USE;

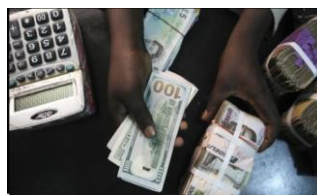
$$P = \frac{I \times 100}{TR}$$

WHEN FINDING TIME (T) USE;

$$T = \frac{I \times 100}{PR}$$

WHEN FINDING RATE (R) WHICH IS USUALLY IN PERCENTAGE %, USE;

$$R = \frac{I \times 100}{PT}$$



Example 1:

A man borrowed #90 for 3 years at the rate of 20% per annum. How much interest will he have to pay?

Solution

I = ? P = #90, T = 3 years, R = 20%

$$I = \frac{P \times T \times R}{100}$$

$$I = \frac{90 \times 3 \times 20}{100}$$

$$= \frac{5400}{100}$$

$$100 \quad (\text{cancel out})$$

$$I = \#54$$



Example 2:

If the simple interest on #750 for 2 years is #27, find the rate per annum.

Solution

Note that the simple is #27. On #750 which is the principal

$$I = \#27 \quad P = \#750, \quad T = 2 \text{ years}, \quad R = ?$$

$$R = \frac{I \times 100}{PT}$$

$$R = \frac{27 \times 100}{750 \times 2}$$

$$= \frac{2700}{1500}$$

$$= 1.8\%$$

(cancel out)

$$R = 1.8\%$$

Example 3:

A trader gains #4000 on a sale which was equivalent to 8% profit. What was the cost price?

Solution

Cost price is the principal

$$I = \#4000 \quad P = ? \quad T = 1 \text{ year}, \quad R = 8\%$$

$$P = \frac{I \times 100}{TR}$$

$$P = \frac{4000 \times 100}{1 \times 8}$$

$$= \frac{400000}{8}$$

$$= 50000$$

$$P = \#50000$$

(cancel out)



Example 4:

How long did it take a man who invested #280 to yield interest of #199 at 8.5% per annum.

Solution

$$I = \#199 \quad P = \#280 \quad T = ? \quad R = 8.5\%$$

$$T = \frac{I \times 100}{PR}$$

$$T = \frac{199 \times 100}{280 \times 8.5}$$

$$= \frac{19900}{2380}$$

$$T = 8.36$$

$$= 8.36$$

$$T = 8.36 \text{ years}$$

(cancel out)



Evaluation/Assignment: At the end of this lesson students should be able to solve questions on the following;

1. A man invested #250.60 at the rate of 15% for 20 years. Find its simple interest.
2. If the simple interest on #750 for 2 years is #27, find the rate per annum.
3. Find the principal that will earn #45 interest in 6 years at 3% per annum.

Reference: The New National mathematics; page137 - 143, Exercise5.2

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