

Here are three typical Financial Mathematics problems suitable for a first-year high school student, covering core concepts like simple interest, calculating tax and discounts, and understanding compound growth.

Problem 1: Calculating Simple Interest 💰

Concept: The formula for simple interest ($I = PRT$).

Question:

You deposit **\$800** into a savings account that earns a simple annual interest rate of **3.5%**. If you keep the money in the account for **5** years, what is the total amount of interest earned, and what is your total balance?

Guidance:

1. Convert the annual interest rate from a percentage to a decimal.
2. Use the formula $I = PRT$ to calculate the total interest earned.
3. Add the interest to the principal (initial deposit) to find the final balance.

Next

Step 1: Convert the Interest Rate to a Decimal

The simple interest formula requires the rate (R) to be expressed as a decimal. Divide the percentage by 100.

$$\text{Rate}(R) = 3.5\% \div 100 = \mathbf{0.035}$$

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Step 2: Calculate the Total Interest Earned (I)

Use the Simple Interest formula: $I = PRT$

Variable	Value	Description
P (Principal)	\$800	The initial amount deposited.
R (Rate)	0.035	The annual interest rate (as a decimal).
T (Time)	5 years	The length of the investment.

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$$\begin{aligned} I &= 800 \times 0.035 \times 5 \\ I &= 800 \times 0.175 \\ I &= \$140 \end{aligned}$$

The total interest earned is **\$140**.

Step 3: Calculate the Final Balance (A)

The final balance is the sum of the initial principal (P) and the total interest earned (I).

$$\begin{aligned} \text{Balance}(A) &= P + I \\ A &= \$800 + \$140 \\ A &= \$940 \end{aligned}$$

Final Answer:

- Total interest earned: **\$140**