AIM: Use the simple interest formula to find either interest, principle, interest rate or time

Do Now: Identify what each of the following letters stand for in the simple interest formula.

Special Notes:
- **Interest**: amount "earned" make or owe
- To find the total you must **add interest + principle**
- Rate may be called Interest Rate and must always be written as a decimal
- Time is always written as years.
- To change months to years $\div \text{ by } 12$

30 months = 2.5 yrs
82 months = 4.3 yrs
## FINDING SIMPLE INTEREST

**STEP 1:** Identify I, P, R, & T  
**STEP 2:** Substitute into the formula  
**STEP 3:** Multiply to find the answer

**Example 1:** How much interest does a $318 investment earn at 9% in 2 years?

\[
I = P \cdot R \cdot T
\]

\[
I = 318 \cdot 0.09 \cdot 2
\]

\[
I = 57.24
\]

**Your Turn:**

1) If you borrow $675 for six years at an interest rate of 10%, how much interest will you pay?

2) If you invest $420 for 30 months at an interest rate of 5%, how much interest will you earn?

3) If you invest $25,000 in an account with 8% interest rate for 18 months what is the total that will be in the account at the end of that time?

4) If you borrow $20,000 for 48 months at an interest rate of 3.5%, what is the total amount you will pay back?
FINDING PRINCIPLE, RATE OR TIME

STEP 1: Identify I, P, R, & T
STEP 2: Substitute into the formula
STEP 3: Multiply quantities on the right then divide

Example 1: How long did you invest if you started with $630, got a 9% interest rate and received $453.60 in interest?

\[ I = P \cdot R \cdot T \]

\[ 453.60 = 630 \times 0.09 \times T \]

\[ 453.60 \div 56.7 = 8 \text{ years} \]

Your Turn:

1) How long would it take to earn $50 interest on a $500 investment with a 5% interest rate?

2) If you borrowed $3,000 for 2 years and paid $270 in interest, what was the interest rate?

3) How much do you need to invest to make $12,000 in 5 years with a 8% interest rate?

4) How long did you pay back a loan if you borrow $12,500 paid back a total of $14,337.50 and the interest rate was 4.2%?
REVIEW STATION

1) What is the cost of a pair of pants that originally cost $34.99 and is 15% off?

2) What is the total cost of a flashlight that was originally $5.50 and marked up 110%?

3) How much commission did Helen earn if she gets 6% commission and she had total sales of $43,500?

4) How much tip should Hal leave if he wants to leave 20% and the bill was $23.40?

5) What is the final cost if a TV is $795.00 and there is 8.5% sales tax?

6) How much is a shirt that is originally $30 and is 25% off if you get an additional 10% off at the register?

7) What is the final cost of a $3,200 couch that is 15% off and then 8% sales tax is added onto the discounted price.