Simple versus compound growth

6 questions | 14 marks

Equivalent correct methods earn the corresponding marks.

1. Find the yearly simple interest on 800 dollars at 6%. [2 marks]

$800 \times 0.06 = 48$.

Answer: 48 dollars

2. Find the total after 4 years on 800 dollars at 6% simple interest. [2 marks]

$800(1 + 0.06 \times 4) = 992$.

Answer: 992 dollars

3. Find the total after 2 years on 800 dollars at 6% annual compound interest. [2 marks]

$800(1.06)^2 = 898.88$.

Answer: 898.88 dollars

4. Balances are 1000, 1040, 1080 at consecutive years. Identify the simple model rate. [2 marks]

The yearly increase is 40, and $40/1000 = 0.04$.

Answer: 4% annually

5. Compare simple and annual compound totals for 500 dollars at 10% annually for 2 years. [3 marks]

Simple: $500(1 + 0.1 \times 2) = 600$. Compound: $500(1.1)^2 = 605$.

Answer: 600 dollars simple; 605 dollars compound.

6. Why do the two models agree after exactly one year when principal and annual rate match? [3 marks]

At $n = 1$, both formulas equal $P(1 + r)$.

Answer: Both apply the rate once to the original principal.