PRACTICAL AND FINANCIAL LITERACY

# Simple and Compound Interest

### Difficulty level: Intermediate

### Practical and Financial Literacy

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## *Overview of the concept*

This is how you compare a savings account that pays interest only on what you put in with one that also pays interest on the interest, so you can see which grows your money faster. Two accounts can start with the same deposit and the same rate, and still end up with different amounts because one compounds and the other does not. A borrower comparing two loans needs the same comparison, because the one that compounds costs more over time. Knowing the difference between simple and compound interest tells you which account grows your money and which loan costs you more.



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## *Rule*

**Simple and compound interest: simple interest is charged only on the original amount, the principal, while compound interest is charged on the principal plus the interest already earned.**

That is why compound interest grows faster over time.

## Worked examples

EXAMPLE 1

**Q You put $1,000 in a savings account that pays 5% simple interest a year. How much interest will you earn in 3 years?**

### SOLUTION

This is a simple interest question, so start with the one rule to remember: interest = principal x rate x time.

The principal is $1,000, the rate is 0.05, and the time is 3 years. So the interest is 1,000 x 0.05 x 3. One thousand times 0.05 is 50, and 50 times 3 is 150.

So the interest is $150, and the total in the account is $1,150.

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EXAMPLE 2

**Q** **You put $1,000 in a different account that pays 5% compound interest a year. How much will be in the account after 2 years, and how does that compare with simple interest?**

**SOLUTION**

This is a compound interest question, so remember the one difference: each year the interest is added to the balance, and next year's interest is earned on that bigger amount.

After year 1: 5% of $1,000 is $50, so the balance is $1,050. After year 2: 5% of $1,050 is $52.50, so the balance is $1,102.50.

So the account holds $1,102.50. With simple interest it would be $1,100, so compound interest earns $2.50 more, because the interest itself earns interest.

## Practice questions

1 **Find the simple interest on $2,000 at 4% a year for 2 years.**

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**2** What is the total amount for the loan in Question 1?

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**3** Find the compound interest on $1,000 at 10% a year, compounded yearly, for 2 years.

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**4** $500 is invested at 10% for 2 years. Which earns more, simple or compound interest, and by how much?

A. Compound, by $5.00

B. Simple, by $5.00

C. Compound, by $10.00

D. Simple, by $10.00

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5 **The simple interest on a loan is $120 at 6% a year for 2 years. What was the principal?**

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6 **A loan of $500 at 8% simple interest gives $120 of interest. For how many years was the money borrowed?**

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7 **A loan of $400 earns $48 of simple interest in 3 years. What is the annual rate?**

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## What is the principal?

A The original amount borrowed or saved

B The interest earned each year

C The total after interest is added

D The rate charged per year

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## $500 is invested at 10% compound interest a year, compounded yearly. What is the total after 2 years?

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## Why does compound interest grow faster than simple interest?

A Each year's interest itself earns interest

B The principal keeps growing

C The interest rate rises each year

D The bank adds a bonus each year

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## ANSWER KEY

**1.** $160

**2.** $2,160

**3.** $210

**4.** Compound, by $5.00

**5.** $1,000

**6.** 3 years

**7.** 4%

**8.** The original amount borrowed or saved

**9.** $605

**10.** Each year's interest itself earns interest

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