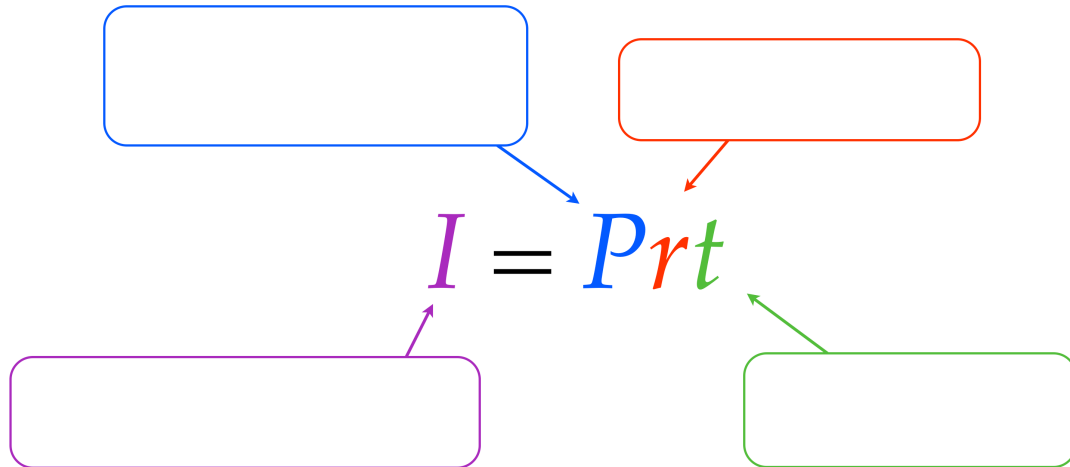


Simple Interest



Simple Interest $I = Prt$

What is the **simple interest** due if **\$1,500** is borrowed for **2 years** at a simple **interest rate** of **8%** per year.

Simple Interest $I = Prt$

A bank account pays 6% interest that compounds quarterly. If you invest \$2,000 and the interest is left to accumulate, how much will be in your account after 1 year?

Compound Interest

The diagram shows the compound interest formula $A(t) = P(1 + \frac{r}{n})^{n \cdot t}$ with several colored boxes and arrows indicating their meanings:

- A blue box points to P .
- A red box points to r .
- A green box points to $n \cdot t$.
- A purple box points to $A(t)$.
- An orange box points to n .

Below the boxes, the following text is provided:

Compounded Annually;
Compounded Semiannually;

Compounded Quarterly;
Compounded Monthly;

Compound Interest $A(t) = P(1 + \frac{r}{n})^{n \cdot t}$

You deposit \$500 in a bank account that pays you 8% interest. How much money will you have in 10 years if your interest is compounded annually? quarterly? monthly?

Compound Interest $A(t) = P(1 + \frac{r}{n})^{n \cdot t}$

You deposit \$500 in a bank account that pays you 8% interest. How much money will you have in 10 years if your interest is compounded annually? quarterly? monthly?

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Annually

$$A(10) \approx \$1080$$

Quarterly

$$A(10) \approx \$1105$$

Monthly

$$A(10) \approx \$1109.82$$

Compound Interest $A(t) = P(1 + \frac{r}{n})^{n \cdot t}$

A bank account pays **6% interest** that compounds **quarterly**. If you invest **\$2,000** and the interest is left to accumulate, how much will be in your account after **1 year**?

First Quarter

$$P = \$2,000 \quad r = .06$$

$$t = \frac{1}{4}$$

$$I = 2,000 \cdot .06 \cdot \frac{1}{4}$$

$$I = \$30$$

Second Quarter

$$P = \$2,030 \quad r = .06$$

$$t = \frac{1}{4}$$

$$I = 2,030 \cdot .06 \cdot \frac{1}{4}$$

$$I = \$30.45$$

Third Quarter

$$P = \$2,060.45 \quad r = .06$$

$$t = \frac{1}{4}$$

$$I = 2,060.45 \cdot .06 \cdot \frac{1}{4}$$

$$I = \$30.91$$

Fourth Quarter

$$P = \$2,091.36 \quad r = .06$$

$$t = \frac{1}{4}$$

$$I = 2,091.36 \cdot .06 \cdot \frac{1}{4}$$

$$I = \$31.37$$

$$\text{End of Year Total} = \$2,091.36 + \$31.37 = \$2,122.73$$

Compound Interest $A(t) = P(1 + \frac{r}{n})^{n \cdot t}$

A bank account pays **6% interest** that compounds **quarterly**. If you invest **\$2,000** and the interest is left to accumulate, how much will be in your account after **1 year**?

Quarterly

$$A(1) = \$2,122.73$$