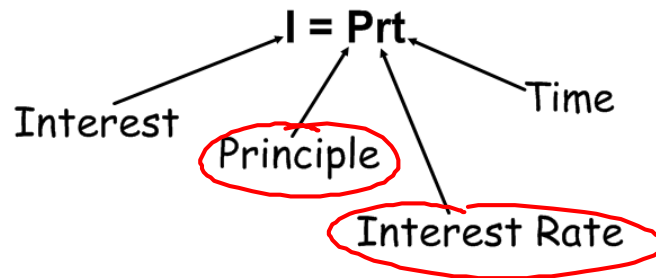


Personal Finance – Simple Interest

Simple Interest Formula



Simple Interest: Interest that is calculated only on the original investment (**Principle**), using the simple interest formula $I = Prt$. Where:

$I =$ interest earned on investment

$P =$ initial investment

$r =$ interest rate as a decimal (o/o divided by 100)

$t =$ time in years

Although the simple interest formula is $I = Prt$, it is often useful to solve for other variables in the equation (P , r or t). To solve for P , r or t , we must first rearrange the simple interest formula. Write out the rearranged equations below to solve for the indicated variable.

Rearrangement

Solve for P

$$P = \frac{I}{r \times t}$$

Solve for r

$$r = \frac{I}{P \times t}$$

Solve for t

$$t = \frac{I}{P \times r}$$

Simple Interest – Practice

1. Express the following interest rates as (r) in the simple interest formula.

a. $\frac{32\%}{100}$ $= 0.32$	b. $\frac{6\%}{100}$ $= 0.06$	c. $\frac{4.5\%}{100}$ $= 0.045$	d. $\frac{0.5\%}{100}$ $= 0.005$
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2. Express the following lengths of time as (t) in the simple interest formula.

a. $\frac{18 \text{ months}}{12}$ $= 1.5 \text{ years}$	b. $\frac{16 \text{ weeks}}{52}$ $= 0.31 \text{ years}$ 0.31 years	c. $\frac{88 \text{ days}}{365}$ $= 0.24 \text{ years}$	d. $\frac{360 \text{ days}}{365}$ $= 0.99 \text{ years}$
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3. Josh borrowed \$500 from Mr. Gilbert. He charged him 2.5% simple interest.

a. If Josh pays back Mr. Gilbert in 14 months, how much interest did he pay?

$$I = Prt$$

$P = 500$
 $r = \frac{2.5}{100} = 0.025$
 $t = \frac{14}{12} = 1.17$

$$I = 500 \times 0.025 \times 1.17$$

$$= 14.63$$

\$14.63 in interest

4. Christian has decided to invest in a GIC that pays 3.25% simple interest. He earned \$485 in interest over 36 months. How much did Christian originally invest? $P?$

$$P = \frac{I}{r \times t}$$

$I = 485$
 $r = \frac{3.25}{100} = 0.0325$
 $t = \frac{36}{12} = 3$

$$P = \frac{485}{0.0325 \times 3} = \frac{485}{0.0975} = 4974.36$$

5. What rate of simple interest is needed to double \$700 in 3 years?

Interest = Principle

$$r = \frac{I}{P \times t}$$

$I = 700$
 $P = 700$
 $t = 3$

$$r = \frac{700}{700 \times 3} = \frac{700}{2100} = 0.3333$$

33.3%

6. Kayla's investment matured from \$1,300 to \$1,750. It was invested at a simple interest rate of 4.25%. For how long was Kayla's money invested?

$$t = \frac{I}{P \times r}$$

$I = 1750 - 1300 = 450$
 $P = 1300$
 $r = \frac{4.25}{100} = 0.0425$

$$t = \frac{450}{1300 \times 0.0425}$$

$$= 8.14 \text{ years}$$