

Solving Problems Involving Interest

_____ - an initial amount of money borrowed or invested

_____ - an amount of money that is a percent of the principal

_____ - a percent used to calculate interest

_____ - interest calculated using only the original principal and the amount of time the principal earns interest

ex: Suppose you put \$100 in an account that earns 5% simple interest.

Simple Interest

Time	Balance
Beginning	\$100
1 year later	
2 years later	
3 years later	

We can calculate the interest earned via simple interest with the following formula:

$$I = Prt$$

I is interest earned

P is principal

r is simple interest rate

t is time (in years)

Ex 1.

Mike invests \$800 at 6% simple interest.

Time	Interest Earned	Final Balance
1 year		
5 years		
60 days		

_____ - interest calculated based on principal and prior earned interest

_____ - an interest rate used to calculate compound interest

ex: Suppose you put \$100 in an account that earns 5% APR (compounded annually).

Compound Interest

Time	Balance
Beginning	\$100
1 year later	
2 years later	
3 years later	

Here's the formula for finding the final balance with compound interest:

$$B = P \left(1 + \frac{r}{n} \right)^{nt}$$

B is the final balance

P is the principal

r is the APR

n is the number of times interest is compounded per year

t is the time (in years)

	n
Annually	1
Semiannually	2
Quarterly	4
Monthly	12
Daily	365

Ex 2.

Henry invests \$2000 with an APR of 6%. If the interest is compounded monthly, how much will he have after 1 year?

After 4 years?