

7.7 cont. Compound Interest

Students will be able to calculate interest earned and account balances.

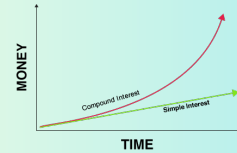
Vocab

Interest - The amount earned or paid for the use of money

Principal - The amount of money deposited or borrowed

Compound interest - Interest that is earned on both the principal and any interest that has been earned perviously

Simple interest - Interest that is earned or paid only on the principal



Compound Interest Formula

When an account earns interest compounded annually, the balance **A** is given by the formula:

$$A = P(1+r)^t$$

Where *P* is the principal, *r* is the annual interest rate (written as a decimal), and *t* is the time in years.

Compound Interest

Suppose you deposit \$50 into a savings account that earns 2% interest compounded annually. Fill in the table below to show the balance of your account after each of the 3 years.

$$A = P(1+r)^t$$

Year	Formula	Balance
1	$A = 50(1+.02)^1$	\$51
2	$A = 50(1.02)^2$	\$52.02
3	$A = 50(1.02)^3$	\$53.06



$0,000,000,000,000$
 1.02
 $A = 50(1.02)^{30} = \$90.56$

Calculating Compound Interest

You deposit \$1500 into an account that earns 2.4% interest compounded annually. Find the balance after 6 years.

$$1500(1+.024)^6$$

$$1500(1.024)^6$$

You deposit \$12,000 into an account that earns 3.5% interest compounded annually. Find the balance after 5 years.

$$A = P(1+r)^t$$

$$A = 12000(1.035)^5$$

$$\$14,252.24$$

Find the balance in an account 14 years after \$1750 was deposited if the account pays 2.3% interest compounded annually.

$$1750(1.023)^{14}$$

$$\$2406.01$$

You have \$900 dollars you want to put into an account for 6 months. You have to choose which account you will put it into.

$t = .5$

Account 1
6% Simple Interest

Account 2
4% interest compounded annually

$A = Prt + P$

$A = P(1+r)^t$

\$927

\$917.82

You have \$2000 dollars you want to put into an account for 5 years. You have to choose which account you will put it into.

Account 1
4% Simple Interest

Account 2
4% interest compounded annually

$A = Prt + P$

$A = P(1+r)^t$

$2000(.04)(5) + 2000$

$A = 2000(1.04)^5$

\$2460

\$2433.31

Create a 3x3 board on your paper:

<http://www.interactive-maths.com/compound-interest-and-simple-interest-qqi-bingo.html>

Homework

Pg. 380-382

#18-23, 25, 26, 37