

pg. 28-29 Compound Interest

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Compound Interest

Compound Interest: Interest paid on the initial investment (called the principal) and on any previous interest.

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Interest is usually compounded more than once a year.

P: \$1000

r: .08

t: 2

Formula for Compound Interest

y = P(1 + r/n)^nt

Principal

rate as a decimal

Number of times per year that interest is compounded

Example: You deposit \$1000 in a bank account that pays 8% annual interest. Find the balance after two years if you compound the interest:

a) Annually n=1

b) Quarterly n=4

c) Monthly n=12

y = 1000(1 + 0.08/1)^(1\*2)

\$1,166.40

y = 1000(1 + 0.08/12)^(12\*2)

\$1,172.89

y = 1000(1 + 0.08/4)^(4\*2)

\$1,171.66

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3. An amount of \$1,500.00 is deposited in a bank paying an annual interest rate of 4.3%, compounded quarterly. What is the balance after 6 years?

Formula:  $P: 1,500$      $R: .043$      $t: 6$

$$y = 1,500 \left( 1 + \frac{.043}{4} \right)^{(4 \cdot 6)}$$

Answer:

$$\$1,938.84$$

How much is the amount of interest earned?

$$\begin{array}{r} 1,938.84 \\ - 1,500 \\ \hline \$438.84 \end{array}$$

Practice time: Homework worksheet

ODD's only!