

Day 6: Compound Interest

Thursday, December 19, 2013 1:33 PM

AW Math 11

DAY 6 *Compound Interest class notes*

Compound Interest When interest earned is added to initial principle and onto interest earned up to that point

Compounding Period Period of time for which interest is calculated

For example, if the interest rate is compounded:

- semi-annually, there are 2 compounding periods per year.
- quarterly, there are 4 compounding periods per year.
- monthly, there are 12 compounding periods per year.
- daily, there are 365 compounding periods per year.

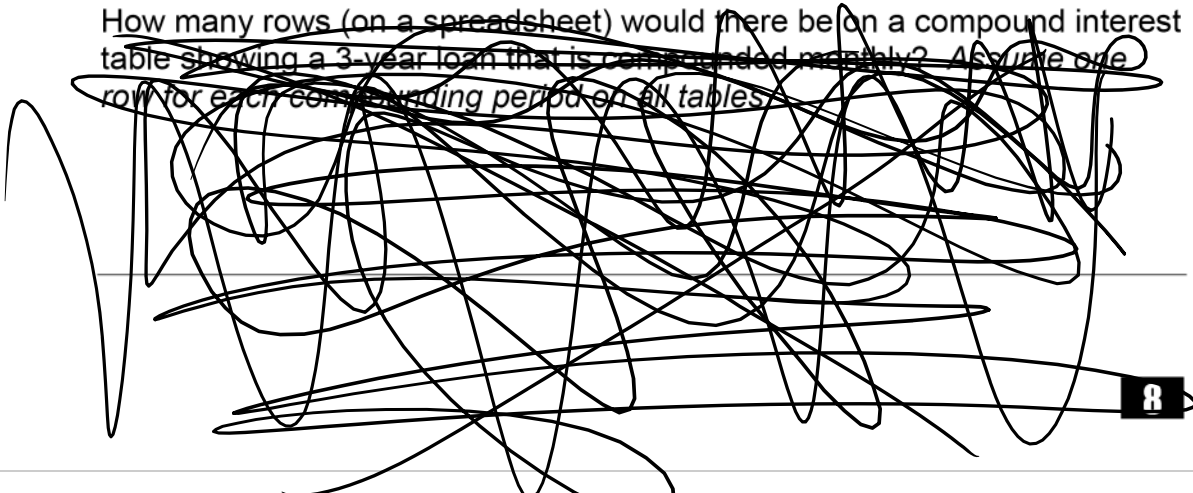
Days to Years:

Ex. 90 days \rightarrow years? $\frac{90}{365} \text{ days} = 0.25 \text{ years}$

Months to Years:

Ex. 18 months \rightarrow years? $\frac{18 \text{ months}}{12 \text{ month}} = 1.5 \text{ years}$

How many rows (on a spreadsheet) would there be on a compound interest table showing a 3-year loan that is compounded monthly? Assume one row for each compounding period on all tables.





AW Math 11

EXAMPLE 1 Creating a Compound Interest Table

Calculate the value of an investment of \$5000.00 that earns interest at a rate of 3% per annum, **compounded semi-annually, for 2 years.**

↳ 2 times a year

Use the table below to show the value of the investment at the end of each compounding period.

INTEREST TABLE			
Interest period	Investment value at beginning or period	Interest earned $(I = Prn)$	Investment value at end of period
1 6 month	\$5000	$I = (5000)(0.03)(0.5)$ = \$75	5000 + 75 \$5075
2 1 year	\$5075	$I = (5075)(0.03)(0.5)$ = \$76.13	5075 + 76.13 = 5151.13
3 1.5 year	\$5151.13	$I = (5151.13)(0.03)(0.5)$	
4 2 year			\$5306.81

Assignment:
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DAY 6 *Compound Interest assignment*

1. a) Use a table to show how much a deposit of \$10000.00 invested at 2% per annum **compounded annually** for 3 years would be worth at the end of each compounding period.

INTEREST TABLE			
Interest period	Investment value at beginning or period	Interest earned ($I = Prt$)	Investment value at end of period

- b) Use a table to show how much a deposit of \$10000.00 invested at 6% per annum **compounded annually** for 3 years would be worth at the end of each compounding period.

INTEREST TABLE			
Interest period	Investment value at beginning or period	Interest earned ($I = Prt$)	Investment value at end of period

- c) Use a table to show how much a deposit of \$10000.00 invested at 2% per annum **compounded monthly** for 4 months would be worth at the end of each compounding period.

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INTEREST TABLE			
Interest period	Investment value at beginning or period	Interest earned ($I = Prt$)	Investment value at end of period

- d) Would you rather choose an investment that compounded yearly or daily? Explain your answer.

2. Use a table to show how much a deposit of \$3000.00 invested at 3.25% per annum **compounded quarterly** for 1.5 years would be worth at the end of each compounding period.

INTEREST TABLE			
Interest period	Investment value at beginning or period	Interest earned ($I = Prt$)	Investment value at end of period

3. Use a table to show how much a deposit of \$2500.00 invested at 1.25% per annum **compounded semi-annually** for 3 years would be worth at the end of each compounding period.

INTEREST TABLE			
Interest period	Investment value at beginning or period	Interest earned ($I = Prt$)	Investment value at end of period