

Today is 9/21/17
Everyone needs a graphing calculator today
Get out note packet

Agenda:
Brain Teaser
Compound Interest

Unit 1 Test:
Next Wednesday or
Thursday

Compound Interest

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What is compound interest?

Example: Your buddy felt pretty bad about the whole thing and wanted to pay you compound interest on the money he borrowed. Calculate how much he would owe you on \$500 at a 5% interest rate compounded annually for 8 years.

(For each year, calculate the interest based on the previous year's balance)

Year	Balance
Now	500
1	$500(1.05) = 525$
2	$525(1.05) = 551.25$
3	578.81
4	607.75
5	638.14
6	670.04
7	703.55
8	738.73

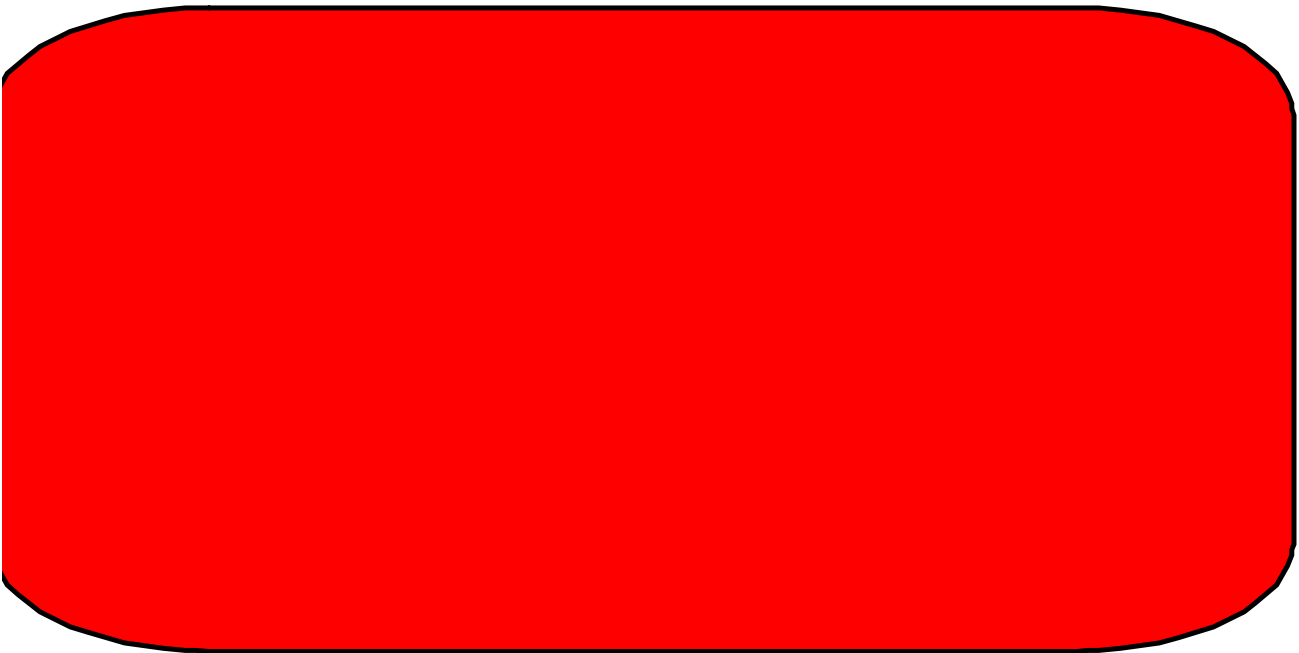
How does this compare to the simple interest amount? Explain.

*700 vs *738.73
 *38.73 more

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Banks, lending institutions, and credit card companies all use compound interest.

- Savings accounts in banks usually compound the interest monthly or quarterly.
- Lending institutions (mortgages, car loans, etc.) usually compound the interest monthly.
- Credit card companies usually compound the interest daily.



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Using the Financial Application (On graphing calculator)

1. Open the Application:

Apps: Finance: Enter (tvm solver): Enter

2. Understand the variables:

N = the number of compounds

I% = annual interest rate (as a percent)

PV = the present value of the loan or investment

PMT = payments made on the loan or into the investment

FV = future value of the loan or investment

P/Y = payments per year

C/Y = compounds per year (automatically fills in same as P/Y)

3. To perform a calculation:

- Move the cursor to the variable you want to calculate, then:
 - Alpha: Enter (Solve)
- The value will automatically calculate
- PV and FV will be opposite signs. Also PMT will be negative on loans

Compound Interest:

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How much money will you have if you invest \$5,000 at 5% interest for 10 years compounded quarterly? (~~x4~~)

$$N = 40 \text{ (10X4)}$$

$$I\% = 5$$

$$PV = 5000$$

$$PMT = 0$$

$$FV = \longrightarrow -8218.16$$

$$P/Y = 4$$

$$C/Y = 4 \text{ (automatically fills in same as P/Y)}$$

Move the cursor to FV, then Alpha: Enter (Solve)

The value will automatically recalculate to -8218.097317

Therefore, the value in 10 years will be \$8,218.10 (~~exactly the same as we found by using the formula!~~)

Practice (it helps to make a variable list so one is set up for you to fill in)

1. How much money will you have if you invest \$400 at 8% interest for 6 years compounded monthly? $\times 12$

$$N = 6 \times 12 = 72$$

$$I\% = 8$$

$$PV = 400$$

$$PMT = 0$$

$$FV = ? \rightarrow \$645.40$$

$$P/Y = 12$$

$$C/Y = 12 \text{ (automatically fills in same as } P/Y)$$