

Business Math Handout 6:

Compound Interest: Dynamic Graphing

Miki Merritt

CALCULATORS: Casio: *fx-9750G Plus & CFX-9850G Series*

Name _____ Date _____

Discussion

In previous activities you explored how changing the interest rate of an investment changes the return on that investment after a fixed amount of time. In this activity you will investigate the dynamic feature of the *fx-9750G PLUS* to explore the same concepts.

Review of Concepts:

Compare the value of a \$5,000 investment after 30 years at 3%, 6%, 8%, 10%, 12% if the compounds are yearly:

Recall the equation: $FV = PV(1 + i)^n$

where FV is future value, PV is the principal investment, i is the interest rate per compound period, and n is the number of compounds.

At 3%:

$$FV = 5,000 (1 + 0.03)^{30}$$

$$FV = \$12,136.31$$

At 6%:

$$FV = 5,000 (1 + 0.06)^{30}$$

$$FV = \$28,717.46$$

At 8%:

$$FV = 5,000 (1 + 0.08)^{30}$$

$$FV = \$50,313.28$$

At 10%:

$$FV = 5,000 (1 + 0.10)^{30}$$

$$FV = \$87,247.01$$

At 12%:

$$FV = 5,000 (1 + 0.12)^{30}$$

$$FV = \$149,799.61$$

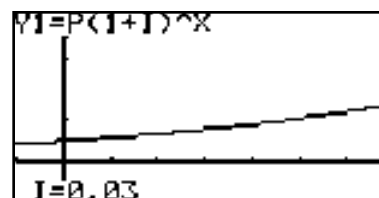
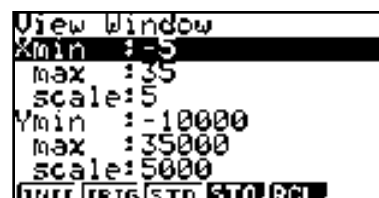
Business Math Handout 6: Compound Interest: Dynamic Graphing

(continued)

CALCULATORS: Casio: fx-9750G Plus & CFX-9850G Series

Name _____ Date _____

Using the Calculator:



- Press the **AC/ON** button, the **MENU** key, and select **6** for DYNA.
- In Y1 type **ALPHA P (1 + ALPHA I) ^ X,θ,T EXE**.
- Press **F4** to setup the dynamic graphing variable:
 - Highlight **I** and press **F1** to select.
 - Highlight **P** and type **5000 EXE**.
- Set the viewing window by pressing **SHIFT F3** :
 - For X min type **(-) 5 EXE**.
 - For X max type **35 EXE**.
 - For scale type **5 EXE**.
 - For Y min type **(-) 10000 EXE**.
 - For Y max type **35000 EXE**.
 - For Y scale type **5000 EXE**.
 - Press **EXIT**.
- Press **F4 F2** to set the Range:
 - For Start type **0.03 EXE**.
 - Type **0.12 EXE**.
 - Type **0.03 EXE**.
 - Press **EXIT**.
- Adjust the speed of the graph by pressing **F3**. You have four options:
 - Stop and Go, Slow, Normal, Fast.

Select the one you prefer by highlighting your selection and pressing **F1** and **EXIT**.
- Press **F6** for DYNA. (Use the **EXE** to change the graph if you use the Stop and Go, otherwise the graph will move itself.) Use the **AC/ON** to stop the graphs and **EXIT**.

Practice Problems

1. Explore what happens to an \$8,000 investment when you invest it at 3%, 6%, 9%, and 12%. Explain.

Business Math Handout 6:

Compound Interest: Dynamic Graphing

(continued)

CALCULATORS: Casio: *fx-9750G Plus* & *CFX-9850G Series*

Name _____ **Date** _____

2. Explore what happens to a \$100,000 investment when you invest it at 1%, 2%, 3%, 4%, and 5%. Explain.

Application and Summary:

1. What is the shape of the graph?
2. How does the shape of the graph change as the percentage changes?
3. What does this shape change signify about the growth of the investment?
4. How would you prefer to invest money? Why?
5. Applying your understanding of investments, why would you want a lower interest rate on a loan?
6. Write a paragraph explaining what you have learned in this activity.
