Name _____ Date _____

LESSON 7.5

Graphing Calculator Activity: Exponential Decay Functions

For use before the lesson "Write and Graph Exponential Decay Functions"

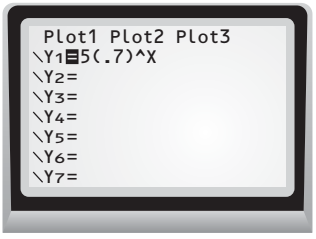
QUESTION **How can you use a graphing calculator to find the value of an exponential decay function for a given value?**

When $a > 0$ and $0 < b < 1$, the function $y = ab^x$ represents exponential decay. You can use a graphing calculator to graph an exponential decay function. You can then use the *calc* feature to find the value of the function for a given value of x.

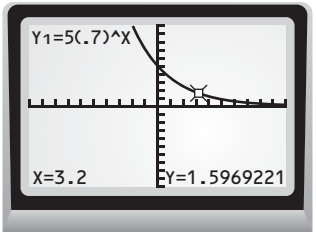
EXAMPLE **Find the value of an exponential decay function**

Use a graphing calculator to find the value of the exponential decay function $y = 5(0.7)^x$ for $x = 3.2$.

STEP 1 Press Y=. Let y_1 equal the exponential decay function.



STEP 2 Use a standard viewing window for the graph. Use the *calc* feature. Press 2nd [CALC] 1. When $x = 3.2$, the value of the function is about 1.6.



PRACTICE **Use a graphing calculator to find the value of the exponential decay function for the given value. Round your answer to the nearest tenth.**

1. $y = 4.5(0.6)^x$; $x = 1.7$
2. $y = 3(0.2)^x$; $x = 0.2$
3. $y = 2(0.75)^x$; $x = 2.7$
4. $y = 2.6(0.83)^x$; $x = 4.3$
5. **Multiple Choice** Choose the sentence that best describes the behavior of the graph of an exponential decay function.
   - **A.** The graph of an exponential decay function rises from left to right.
   - **B.** The graph of an exponential decay function falls from left to right.
   - **C.** The graph of an exponential decay function is a horizontal line.
   - **D.** The graph of an exponential decay function is a vertical line.

Name _____ Date _____

LESSON 7.5

Graphing Calculator Activity: Exponential Decay Functions *continued*

For use before the lesson "Write and Graph Exponential Decay Functions"

TI-83 Plus

Y= 5 (0.7) ^ X,T,θ,*n* ENTER

ZOOM 6 2nd [CALC] 1 3.2 ENTER

Casio CFX-9850GC Plus

From the main menu, choose GRAPH.

5 (0.7) ^ X,θ,T EXE SHIFT F3

F3 EXIT F6 SHIFT F5 F6 F1 3.2 EXE

LESSON 7.5