Name _____ Date _____

LESSON 7.4

Investigating Algebra Activity: Linear and Exponential Functions

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

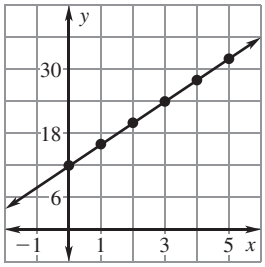
Materials: paper and pencil

QUESTION **How are linear functions and exponential functions different?**

EXPLORE **Graph linear and exponential functions**

STEP 1 Copy and complete the table
The function $y = 4x + 12$ is a *linear function*.
Copy and complete the table using this function.

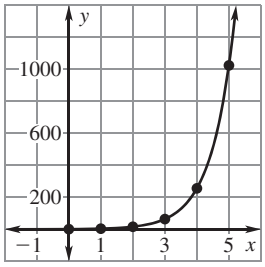
x	0	1	2	3	4	5
y	12	16				



STEP 2 Graph function
Use the table in Step 1 to graph $y = 4x + 12$.

STEP 3 Copy and complete the table
The equation $y = 4^x$ is an *exponential function*.
Copy and complete the table using this function.

x	0	1	2	3	4	5
y	1	4				

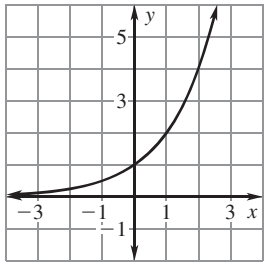


STEP 4 Graph function
Use the table in Step 3 to graph $y = 4^x$.

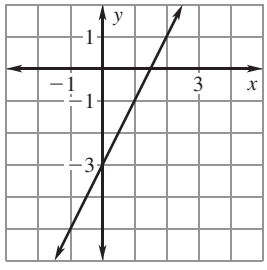
DRAW CONCLUSIONS **Use your observations to complete these exercises.**

1. Which of the graphs below represents a *linear function*? Which shows an *exponential function*? Explain how you know.

a.



b.



2. Describe the rate of increase in an exponential function. How does it differ from the rate of increase of a linear function?

Graph the function. Tell whether it is *linear* or *exponential*.

3. $y = x - 3$ **4.** $y = 3^x$ **5.** $y = -2(2)^x$