13.5 Technology Activity

GRAPHING CALCULATOR

Graphing Non-Linear Functions

GOAL Use a graphing calculator to graph non-linear functions.

Example **Use a graphing calculator to compare the functions.**

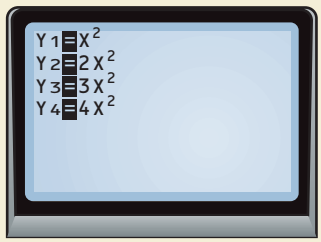
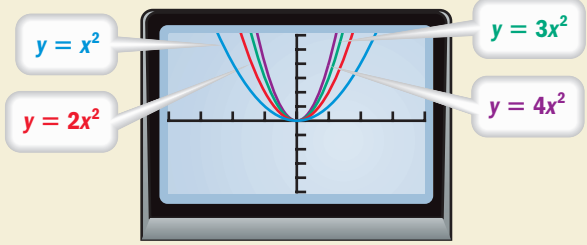
$y_1 = x^2$ $y_2 = 2x^2$ $y_3 = 3x^2$ $y_4 = 4x^2$

HELP with Technology

You may need to adjust your viewing window in order to see the graphs.

Solution

Use the following keystrokes to enter the functions into a graphing calculator:

	Keystrokes	Display
	Y=	
Y_1	x x^2 ENTER	
Y_2	2 x x^2 ENTER	
Y_3	3 x x^2 ENTER	
Y_4	4 x x^2	
	GRAPH	

ANSWER The graphs are curves that pass through (0, 0). As the coefficient of x^2 increases, the curve gets narrower.

Your turn now **Graph the functions using a graphing calculator. Describe the pattern in the graphs.**

1. $y = x^2 + 5$ **2.** $y = x^2 - 5$ **3.** $y = x^2 + 7$ **4.** $y = x^2 - 7$

Graph the functions. Describe the pattern in the graphs.

5. $y = -x^2$ **6.** $y = -2x^2$ **7.** $y = -3x^2$ **8.** $y = -4x^2$