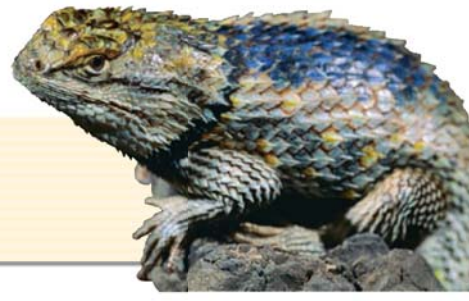
10.8 Compare Linear, Exponential, and Quadratic Models

TEKS A.1.B, A.1.D, A.3.B; 2A.1.B



Before You graphed linear, exponential, and quadratic functions.

Now You will compare linear, exponential, and quadratic models.

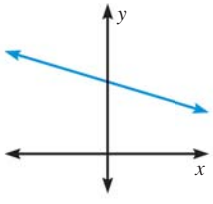
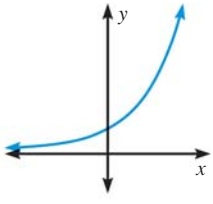
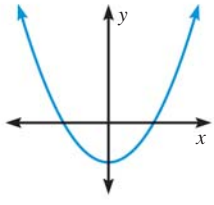
Why? So you can solve a problem about biology, as in Ex. 23.

Key Vocabulary
- **linear function,** *p. 217*
- **exponential function,** *p. 520*
- **quadratic function,** *p. 628*

So far you have studied linear functions, exponential functions, and quadratic functions. You can use these functions to model data.

KEY CONCEPT *For Your Notebook*

Linear, Exponential, and Quadratic Functions

Linear Function	Exponential Function	Quadratic Function
$y = mx + b$	$y = ab^x$	$y = ax^2 + bx + c$
		

EXAMPLE 1 Choose functions using sets of ordered pairs

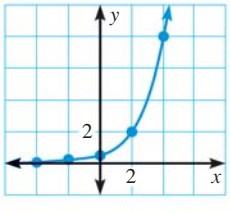
Use a graph to tell whether the ordered pairs represent a *linear function*, an *exponential function*, or a *quadratic function*.

a. $\left(-4, \frac{1}{32}\right), \left(-2, \frac{1}{8}\right), \left(0, \frac{1}{2}\right), (2, 2), (4, 8)$

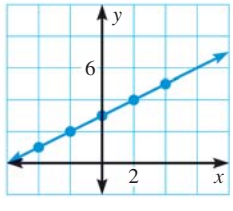
b. $(-4, 1), (-2, 2), (0, 3), (2, 4), (4, 5)$

c. $(-4, 5), (-2, 2), (0, 1), (2, 2), (4, 5)$

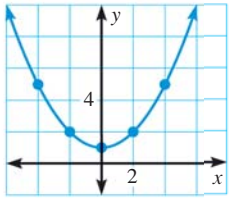
Solution

a. 

Exponential function

b. 

Linear function

c. 

Quadratic function

Animated Algebra at classzone.com