Activity 1

Create *x/y* tables for the functions. Include these *x* values: −2, −1, 0, 1, and 2.

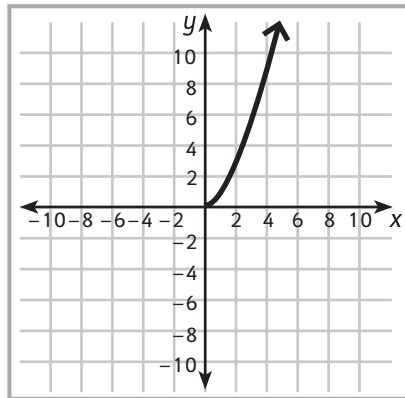**1.** $y = x + 3$ **2.** $y = x^2$ **3.** $y = -x - 1$ **4.** $y = x^3$

Activity 2

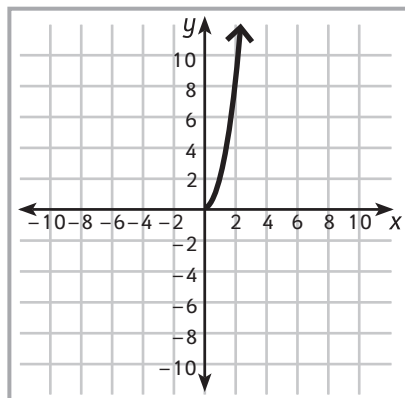**Use your knowledge of nonlinear functions and symmetry to complete the graphs.**

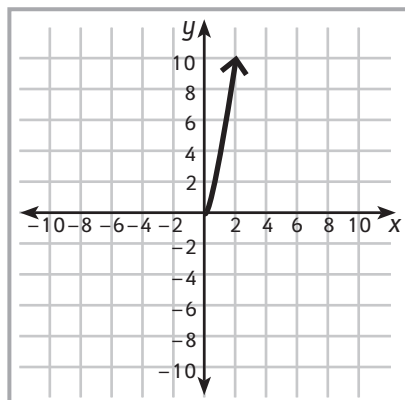**1.** Complete this graph for the function $y = x^2$.

x	y
0	0
1	1
2	4

2. Complete this graph for the function $y = 2x^2$.

x	y
0	0
1	4
2	16

3. Complete this graph for the function $y = x^3$.

x	y
0	0
1	1
2	8

Activity 3

Choose the correct multiple choice answer.

1. One of the key differences between nonlinear and linear functions is how they are graphed. The way they are different is:
    (a) They are lines that go in different directions.
    (b) One is a line and one is a curve.
    (c) They are curves that curve in different directions.

2. Another key difference between nonlinear and linear functions is in the equation. The way they are different is:
    (a) One has an exponent and the other does not.
    (b) One has a slope and the other does not.
    (c) One has a y-intercept and the other does not.

3. In the function $y = x^2$, we see something different in the x/y table. What is it?
    (a) Two of the x/y values are the same.
    (b) Two y-values have the same x-value.
    (c) Two x-values have the same y-value.

Activity 4 • Distributed Practice

Write an equation for each of the functions using $y = mx + b$.

1. The cost of blueberries is $3 per pound.

2. The daily cost of the rental car is $0.10 per mile plus a base fee of $25.

3. The price of gas is $4 per gallon.