Practice 10-8

Choosing a Linear, Quadratic, or Exponential Model

Which kind of function best models the data? Write an equation to model the data.

1. $(-1, 3), (1, 3), (3, 27), (5, 75), (7, 147)$

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

3. $\left(-2, \frac{1}{16}\right), \left(-1, \frac{1}{4}\right), (0, 1), (1, 4), (2, 16)$

4. $(-6, -1), (-3, 0), (0, 1), (3, 2), (6, 3)$

5. $\left(-2, \frac{1}{3}\right), (-1, 1), (0, 3), (1, 9), (2, 27)$

6. $(-4, -32), (-2, -8), (0, 0), (2, -8), (4, -32)$

7.

x	y
-3	$\frac{9}{2}$
-2	2
-1	$\frac{1}{2}$
0	0

8.

x	y
-1	-2
0	-4
1	-6
2	-8

9.

x	y
-4	-4
-2	-1
0	0
2	-1

10.

x	y
0	-2
1	-8
2	-32
3	-128

11.

x	y
-7	-245
-5	-125
-3	-45
-1	-5

12.

x	y
-2	$\frac{3}{2}$
0	$\frac{1}{2}$
2	$-\frac{1}{2}$
4	$-\frac{3}{2}$

13. $\left(-2, \frac{1}{3}\right), \left(-1, \frac{1}{3}\right), \left(0, \frac{1}{3}\right), \left(1, \frac{1}{3}\right), \left(2, \frac{1}{3}\right)$

14. $\left(-1, -\frac{1}{4}\right), \left(0, -\frac{1}{2}\right), (1, -1), (2, -2), (3, -4)$

15. The cost of shipping computers from a warehouse is given in the table below.

Number of Computers	50	75	100	125
Cost (dollars)	1700	2500	3300	4100

   a. Determine which kind of function best models the data.

   b. Write an equation to model the data.

   c. On the basis of your equation, what is the cost of shipping 27 computers?

   d. On the basis of your equation, how many computers could be shipped for $5500?

16. During a scientific experiment, the bacteria count was taken at 5-min intervals. The data shows the count at several time periods during the experiment.

Time Interval	0	1	2	3
Count	110	132	159	190

   a. Determine which kind of function best models the data.

   b. Write an equation to model the data.

   c. On the basis of your equation, what is the count 1 hr, 45 min after the start of the experiment?