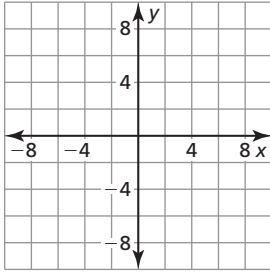


**Chapter
6**

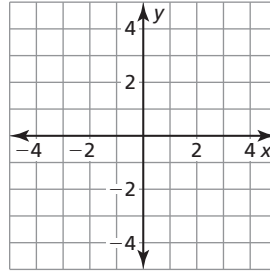
Test B

Plot the points. Tell whether the points appear to represent a *linear function*, an *exponential function*, or *neither*.

1. $(-4, \frac{1}{9}), (4, 3), (0, 1), (8, 6)$

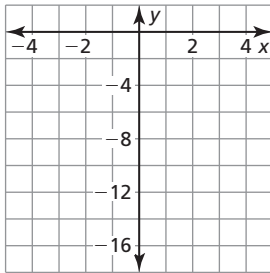


2. $(-2, 4), (4, \frac{1}{16}), (0, 1), (2, \frac{1}{8})$

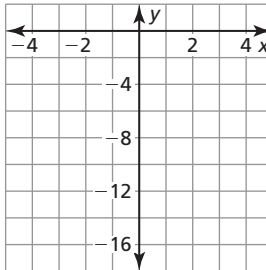


Graph the function. Describe the domain and range.

3. $y = -\frac{1}{2}(4)^x$



4. $y = -2(0.5)^x$



5. You deposit \$675 in a savings account that earns 6% interest compounded monthly.

- a. Write a function that represents the balance after t years.
- b. What is the balance after 3 years?

6. You work for a design company and want to enlarge one of your designs for a new billboard sign. You can enlarge the design by 120% every time you run the program. The original design is 12 inches wide by 24 inches long.

- a. Write a function that represents the width after t times that you run the program.
- b. How wide is the design after running the program five times?
- c. How many times will you have to run the program for the design to be at least 150 feet wide?

Answers

1. See left.

2. See left.

3. See left.

4. See left.

5. a. _____

b. _____

6. a. _____

b. _____

c. _____

Chapter 6 Test B (continued)

Solve the equation. Check your solution.

7. $2 \cdot 4^{x+1} = \frac{1}{32}$

8. $25^x \cdot 5^{x+3} = 625^{x-7}$

Determine whether the table represents an *exponential growth function*, an *exponential decay function*, or *neither*.

9.

x	1	2	3	4
y	2	-4	8	-16

10.

x	0	1	2	3
y	81	27	9	3

Determine whether the sequence is *arithmetic*, *geometric*, or *neither*.

11. 1, 3, 6, 10, ...

12. -80, 40, -20, 10, ...

13. $\frac{2}{3}, \frac{1}{6}, -\frac{1}{3}, -\frac{5}{6}, \dots$

14. $\frac{1}{64}, \frac{1}{32}, \frac{1}{16}, \frac{1}{8}, \dots$

Write a recursive rule for the sequence.

15.

Position, n	1	2	3
Term, a_n	27	9	3

16.

Position, n	1	2	3	4
Term, a_n	-2	-3	-5	-9

17. The first two terms of a sequence are $a_1 = 2$ and $a_2 = -1$. Let a_3 be the third term when the sequence is arithmetic and let b_3 be the third term when the sequence is geometric. Find $2a_3 - b_3$.

Evaluate the function for the given value of x.

18. $f(x) = \frac{1}{3}(4)^x; x = -2$

19. $f(x) = -2\left(\frac{1}{4}\right)^x; x = \frac{1}{2}$

20. The function $P(t) = 2000(1.5)^t$ represents the population of a small town.

- a. Does the function represent exponential growth or exponential decay?
- b. What is the yearly percent change in population?
- c. What is the approximate monthly percent change?
- d. How many people are living in the town after 3 years?

Answers

- 7. _____
- 8. _____
- 9. _____
- 10. _____
- 11. _____
- 12. _____
- 13. _____
- 14. _____
- 15. _____
- 16. _____
- 17. _____
- 18. _____
- 19. _____
- 20. a. _____
- b. _____
- c. _____
- d. _____