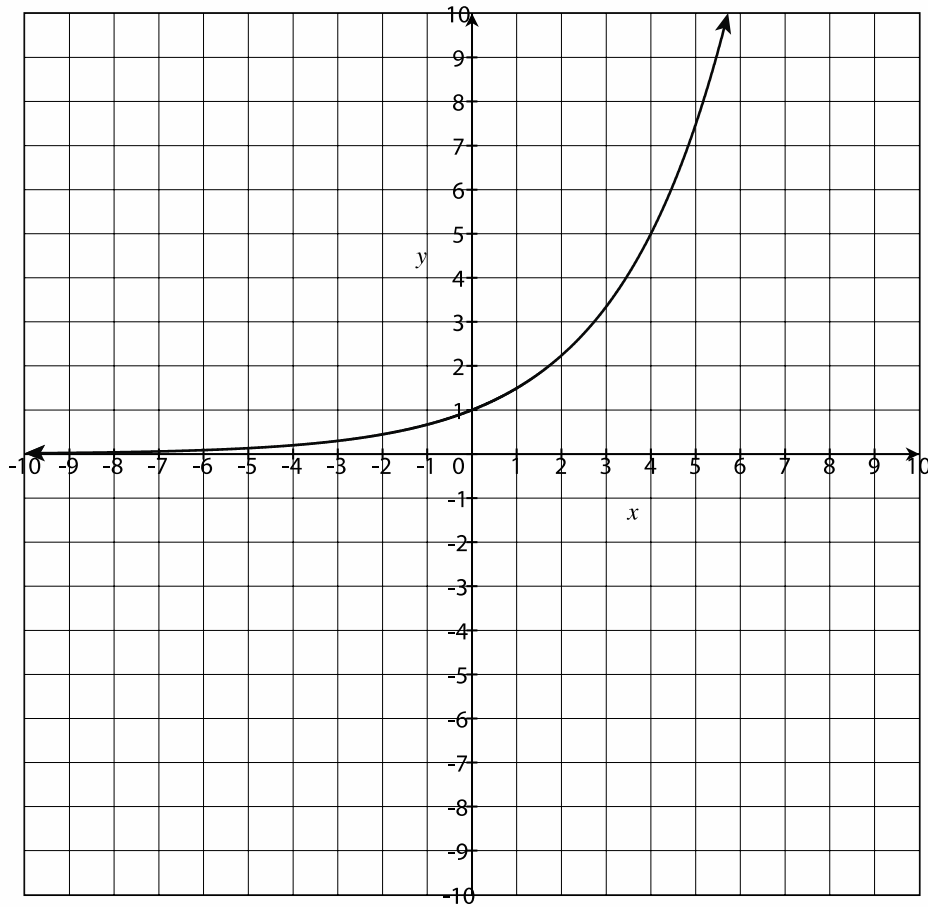2.

DeAndre modeled the growth of his ant population using the function $a(x) = 2(4)^{\frac{x}{3}}$, where x is in days.

Weeks (x)	Amount owed in dollars (f(x))
0	1500
5	1350
10	1200
15	1050
20	900

4.

What is the rate of change for the function   over the interval [4, 8]?

5.

What is the y-intercept of the graph of

6.

x	y
1	−10
2	−90
3	−810
4	−7290

7.

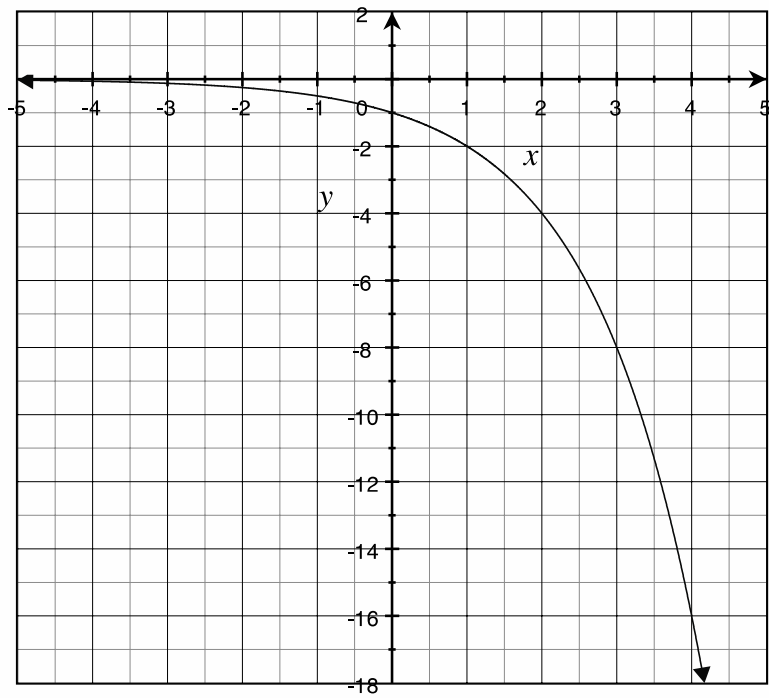What is the best description of the end behavior of the graph below?

8.

Jonathan is putting on a play. He sells tickets for ̇ach. Which equation describes the total money he earns for any number of tickets sold?
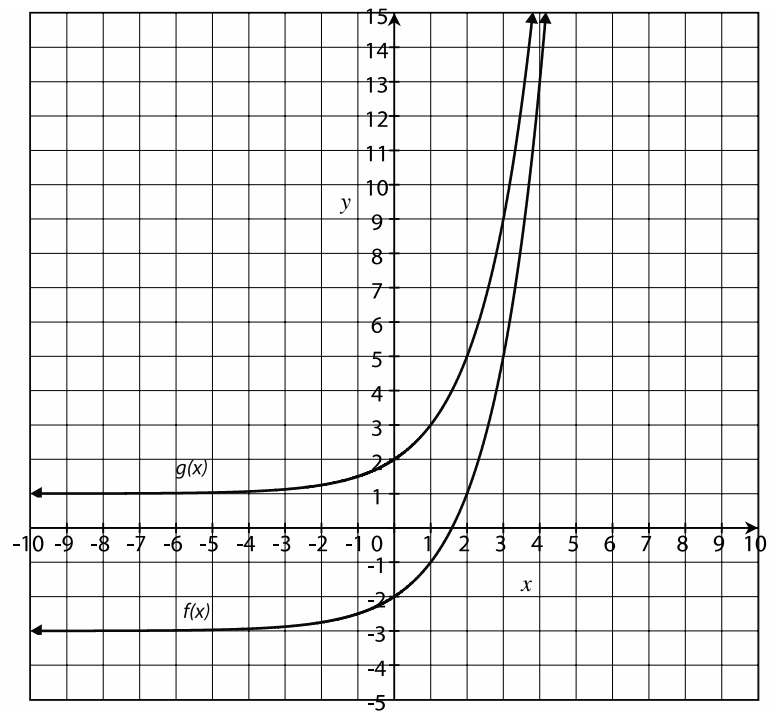
9.

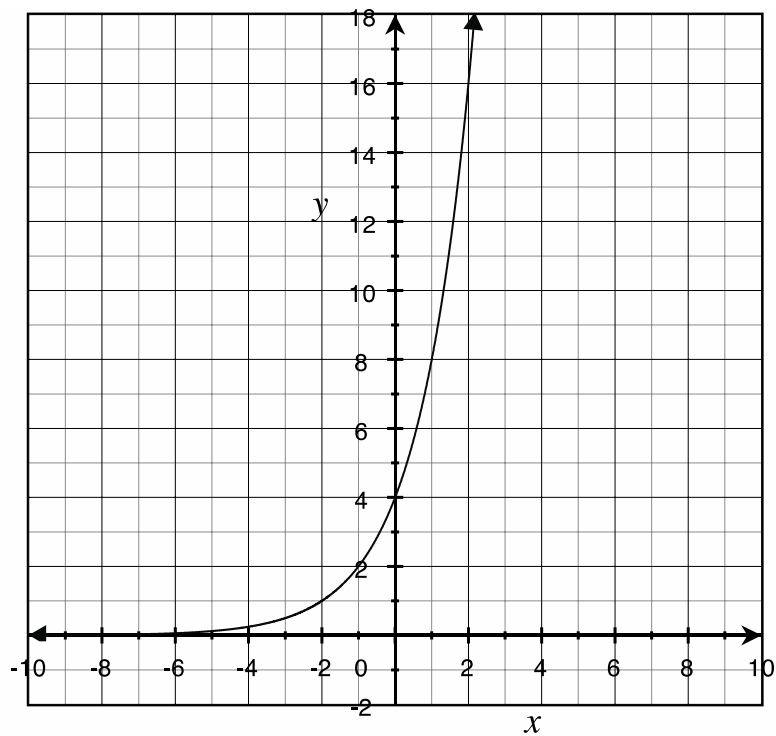| x	y
0	3
1	42
2	588
3	8232

10.

11.

12.

13.

Identify the parameters in the function

14.

Which of the following statements is true about the functions $f(x)$ and $g(x)$?

15.

. A population of bees is decreasing. The population in a particular region this year is 1,250. After 1 year, it is estimated that the population will be 1,000. After 3 years, it is estimated that the population will be 640.

    a. Write a function to model this scenario.

    b. Create a graph to show the bee population over the next 10 years.

    c. Identify the key features of the function. Identify the x- and y-intercepts. Determine the maximum, the minimum, whether the function is increasing or decreasing, the rate of change of the function over the interval [0, 10], and any asymptotes.

___

16.

You are looking to invest $1,500. One savings option follows the function $f(x) = 52.5x + 1500$,

where $f(x)$ is the amount of money in savings after x years. The second option is represented by

the function $g(x) = 1500\left(1 + \dfrac{0.025}{4}\right)^{4x}$, where $g(x)$ is the amount of money after x years.

    a. Which increases faster, $f(x)$ or $g(x)$? Use a graph to explain your answer.

    b. At what point does the value of $f(x)$ equal the value of $g(x)$?

    c. If you were looking to withdraw the money at age 55 and you invest your money at the age of 50, would you choose differently than if you were looking to invest your money at the age of 20? Explain your reasoning.