

Which of the following is a geometric sequence?

A. $-1, -3, 9, 27, \dots$

B. $-1, 2, -4, 8, \dots$

C. $1, 4, 9, 16, \dots$

D. $1, 3, 5, 7, \dots$

The first term of a geometric sequence is -2 . The common ratio is 4 . What is the 6th term?

A. -8192

B. -2048

C. 2048

D. 8192

$a_6 = -2 \cdot 4^5$

Which are the next three terms in the geometric sequence $16, 8, 4, 2, \dots$?

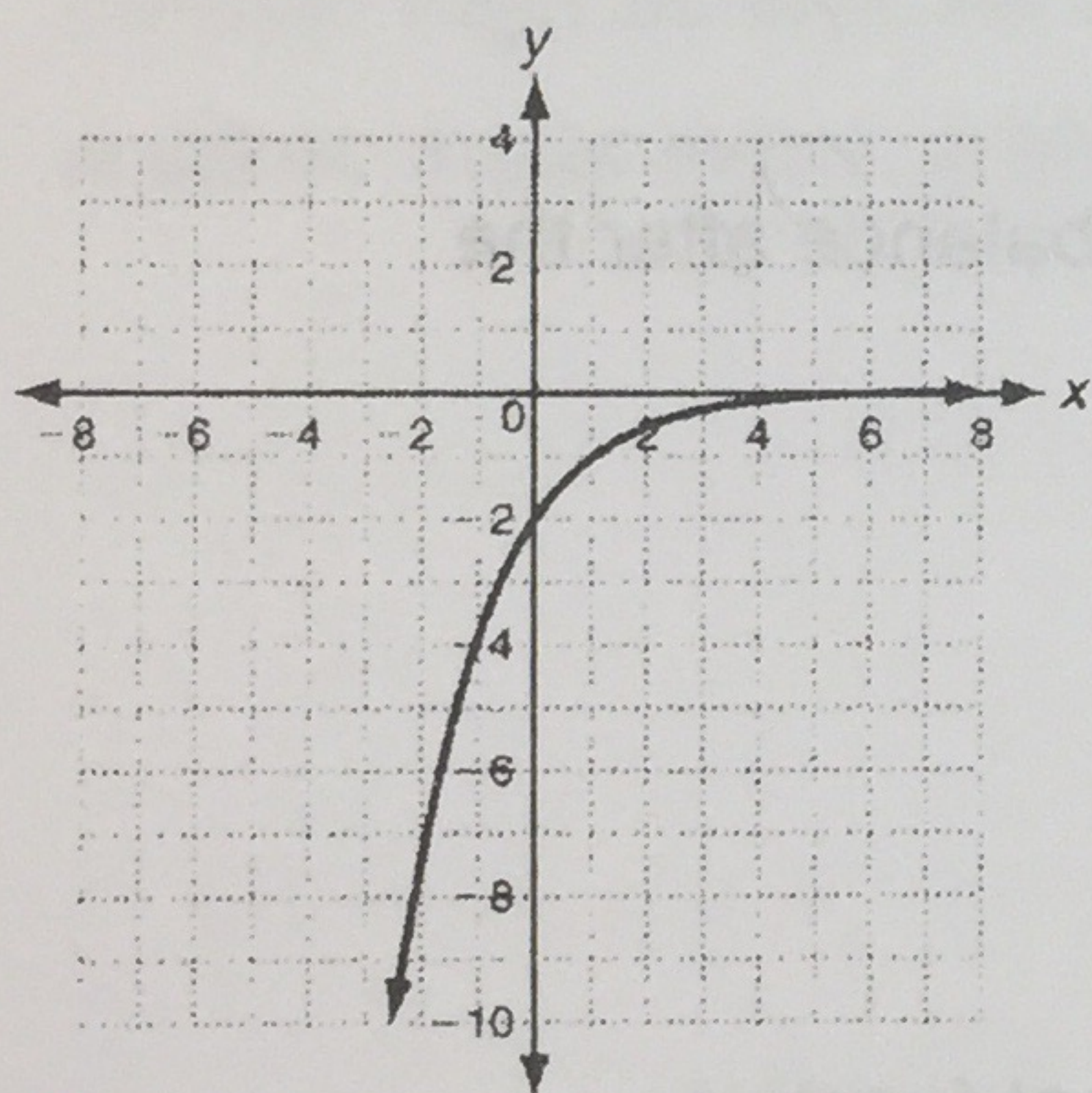
A. $1, 0, -1$

B. $1, \frac{1}{2}, \frac{1}{4}$

C. $0, -2, -4$

D. $\frac{1}{2}, \frac{1}{4}, \frac{1}{8}$

The graph of which function is shown below?



A. $y = -2(2)^x$

B. $y = -2\left(\frac{1}{2}\right)^x$

C. $y = 2(2)^x$

D. $y = 2\left(\frac{1}{2}\right)^x$

A research biologist starts with 100 bacteria and watches it double in number each day. Which equation will give the number of bacteria as a function of x , the number of days?

A. $y = 2^x$

B. $y = 100^x$

C. $y = 2(100)^x$

D. $y = 100(2)^x$

Write an exponential growth or decay function to model each situation. Then find the value of the function after the given amount of time. Circle or box answers.

6. Annual sales for a furniture store are \$375,000 and are increasing at a rate of 6.75% each year; 9 years

$$375000(1 + .0675)^9$$

7. A population of 2300 manatees in Florida is thought to be decreasing at a rate of 1.1% annually; 7 years

$$2300(1 - .011)^7$$

8. The half-life of Cobalt-60 is approximately 5.25 days. Find the amount of Cobalt-60 left from a 30 gram sample after 42 days. Round to the nearest thousandth of a gram.

$$30(.5)^{42 \div 5.25}$$

9. Write a compound interest function to model each situation. Then find the balance after the given number of years.

\$60,000 invested at a rate of 2.5% compounded quarterly; 8 years

$$60000\left(1 + \frac{.025}{4}\right)^{32}$$

10. Describe the transformations of the graph of $y = -2 \cdot 4^x - 3$ from the parent function $y = ab^x$. Tell whether this represents exponential growth or decay.

Transformations : ref. across x
stretch by 2
shift down 3

growth or decay
 (circle one)

Identify each of the following functions as exponential growth or decay. Then give the rate of growth or decay as a percent.

11. $y = 23\left(\frac{5}{4}\right)^x$ 1.25 - 1

growth or decay (circle one)

rate: 25%

12. $13(1.06)^x$

growth or decay (circle one)

rate: 6%