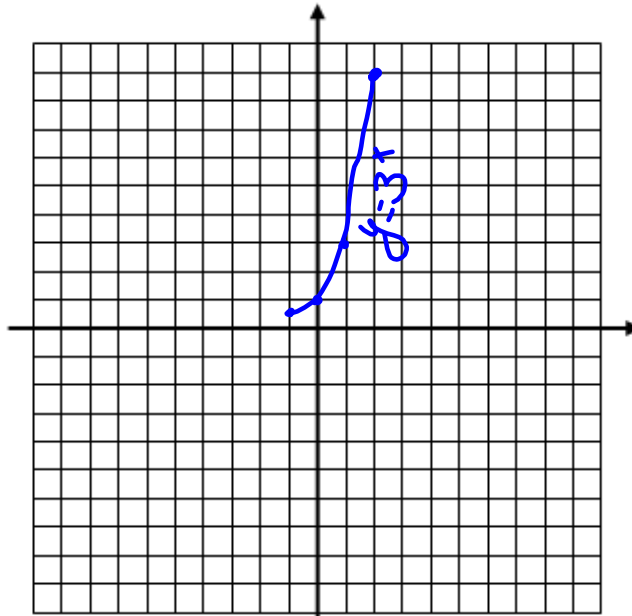


Do Now

On the set of axes below, graph $y = 3^x$ over the interval $-1 \leq x \leq 2$.

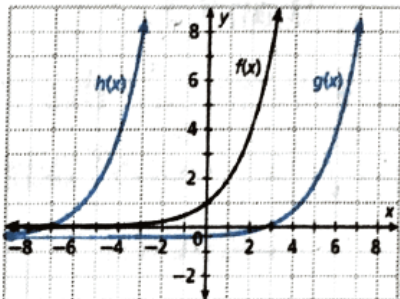
X	Y
-1	$\frac{1}{3}$ or $\frac{1}{3}$
0	1
1	3
2	9



Jan 9-7:05 AM

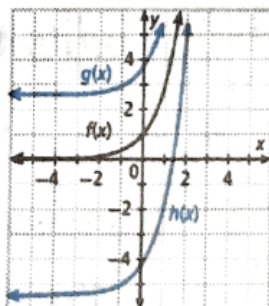
Homework Answers

A, B, C



D. The graph $g(x)$ is a horizontal translation of the graph $f(x)$ right 4 units. The graph $h(x)$ is a horizontal translation of the graph $f(x)$ left 6 units

F, G



H. The graph of $g(x)$ is a vertical translation of the graph $f(x)$ up 3 units. The graph of $h(x)$ is a vertical translation of the graph $f(x)$ down 5 units

Feb 3-6:53 AM

Linear vs. Exponential Functions

Exponential Functions

a function in the form $f(x) = a(b)^x$,
 where $a \neq 0$ and $b \neq 0$
 (is a non-linear function)

a is the y-intercept

b is the growth factor

Jan 2-6:36 PM

Linear Versus Exponential Functions

Linear Functions are based on **repeatedly adding** the same amount (the slope).

$$y = mx + b \quad \begin{array}{l} m = \text{slope} \\ b = \text{y-intercept} \end{array}$$

Exponential Functions are based on **repeatedly multiplying** the same amount (the base).

$$y = a(b)^x \quad \begin{array}{l} a = \text{y-intercept} \\ b = \text{growth} \end{array}$$

Jan 4-6:58 AM

Example 1: The two tables below represent a linear function and an exponential function. Which is which?

TABLE 1

x	0	1	2	3	4
y	5	10	20	40	80

Exponential

TABLE 2

x	0	1	2	3	4
y	8	11	14	17	20


Linear

Find the equations for each table.

Jan 30-1:50 PM


Calculator Instructions

-Linear Regression

- STAT
- 1: Edit...
- Type data into L1 & L2
- STAT
-  CALC
- 4: LinReg

Calculator Instructions

-Exponential Regression

- STAT
- 1: Edit...
- Type data into L1 & L2
- STAT
-  CALC
- 0: ExpReg

Clear Lists

Option 4

Jan 12-6:47 AM

Example 2: Decide whether the table represents a linear or exponential function. Then, write the function formula.

x	0	1	2	3	4	5	6	7
y	2	5	8	11	14	17	20	23

Linear or exponential? $y = 3x + 2$.

x	0	1	2	3	4	5	6	7
y	3	6	12	24	48	96	192	384

Linear or exponential? $y = 3 \cdot 2^x$.

Jan 30-9:59 AM

Example 3: Decide whether the word problem represents a linear or exponential function. Then, write the function formula.

- a. "A library has 8000 books, and is adding 500 more books each year."

Linear or exponential? $y = 500x + 8000$.

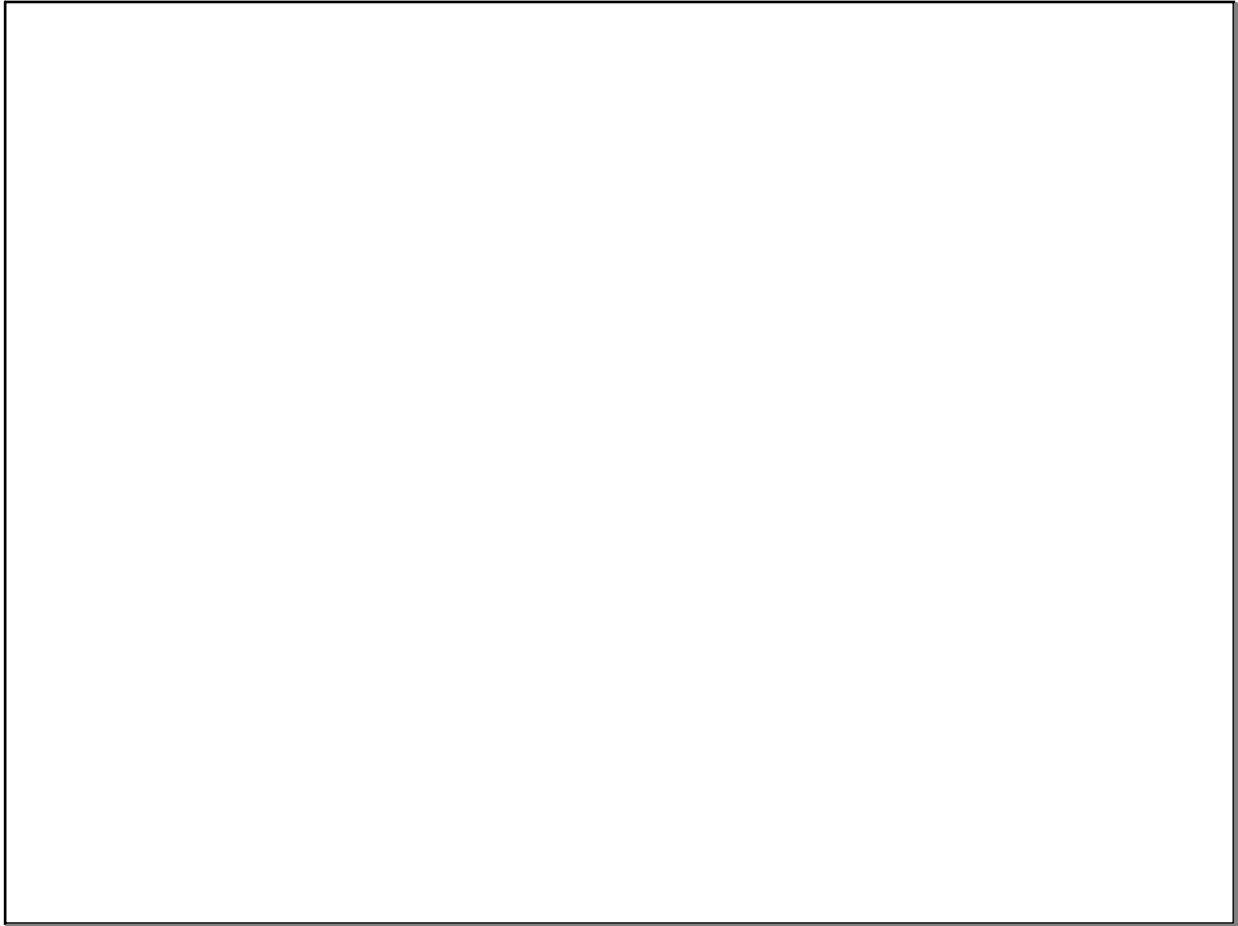
- b. "A gym's customers must pay \$50 for a membership, plus \$3 for each time they use the gym."

Linear or exponential? $y =$ _____.

- c. "A bank account starts with \$10. Every month, the amount of money in the account is tripled."

Linear or exponential? $y =$ _____.

Jan 30-10:04 AM



Jan 5-10:05 AM