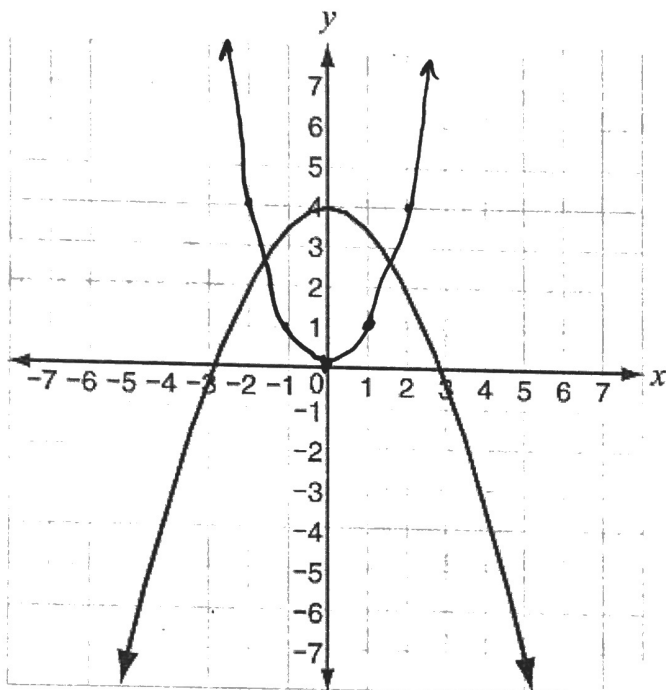


Directions: Answer the following question(s).

4

The function $f(x)$ is defined by $f(x) = x^2$. The graph of the function $g(x)$, defined by $g(x) = kf(x) + h$, is shown on this xy -coordinate plane.



$$y = x^2$$

x	y
-3	9
-2	4
-1	1
0	0
1	1
2	4
3	9

k must be negative
to reflect over x -axis.

Graph is up 4, so $h = 4$

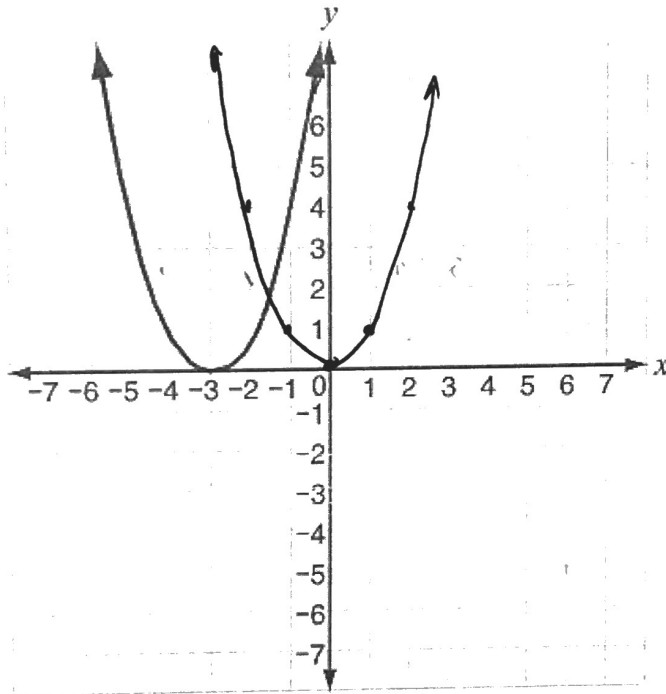
What are the values of k and h ?

- A. $k = 2, h = 4$ B. $k = \frac{1}{2}, h = -4$ C. $k = -2, h = -4$ D. $k = -\frac{1}{2}, h = 4$

Directions: Answer the following question(s).

5

A function is defined by $f(x) = x^2$. The graph of the function $y = g(x)$ is shown on this xy -coordinate plane.



Which equation represents the relationship between the two functions?

- A. $g(x) = f(x) - 3$ B. $g(x) = f(x) + 3$ C. $g(x) = f(x + 3)$ D. $g(x) = f(x - 3)$
- ↙ left 3

6

Trinity claims that the graph of the function $g(x) = f(x - k)$ is located $|k|$ units to the right of the graph of $f(x)$.

Which statement *best* describes Trinity's claim?

- A. The claim is never true, since the graph of $f(x)$ is shifted up or down by $|k|$ units.
- B. The claim is always true, since any value of k will shift the graph of $f(x)$ to the right.
- C. The claim is only true for $k \leq 0$, since positive values of k will shift the graph of $f(x)$ to the left.
- D. The claim is only true for $k \geq 0$, since negative values of k will shift the graph of $f(x)$ to the left.

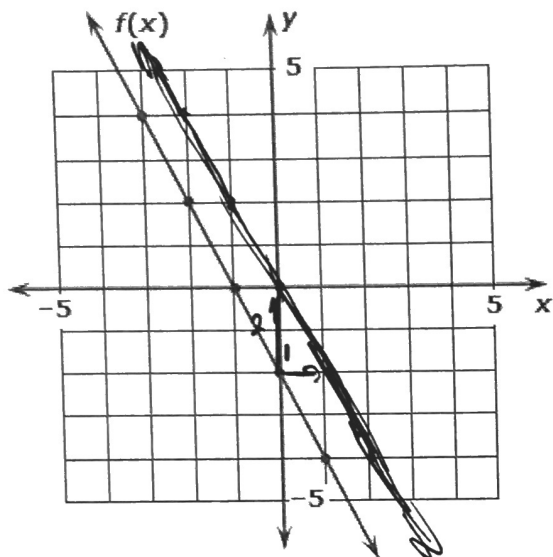
If k is positive,
 $f(x)$ moves right

$k = 2$ $f(x-2)$ → right 2

Graphical Transformations

Directions: Answer the following question(s).

7 The graph of linear function $f(x)$ is shown on a coordinate plane.



up 2 is same as right 1!

Jamal claims that the graph of $f(x) + 2$ is equivalent to the graph of $f(x + k)$. For the case where Jamal's claim is correct, what must be the value of k ? $f(x-1)$

A. -4

B. -1

C. 1

D. 2

8 The graph of a function, $f(x)$, is plotted on the coordinate plane. Select two of the following functions that would move the graph of the function to the right on the coordinate plane.

A. $f(x + 6)$

B. $f(x) + 4$

C. $f(x - 3) + 1$

D. $f(x) - 3$

E. $f(x - 5)$

F. $f(x + 2) - 7$

9 Which statement is true for all functions $f(x)$?

A. The graph of $-f(x)$ is the graph of $f(x)$ reflected over the x-axis.

B. The graph of $-f(x)$ is the graph of $f(x)$ reflected over the y-axis.

wrong! x-axis

C. The graph of $f(kx)$ is the graph of $f(x)$ shifted left or right by $|k|$ units.

→ $f(kx)$ is a horizontal scaling

D. The graph of $f(x) + k$ is the graph of $f(x)$ shifted left or right by $|k|$ units.

↳ no, up/down

10 What is the value of $-3f(x)$ if $f(x) = 7x - 2$?

A. $-21x - 2$

B. $-21x + 6$

C. $7x - 5$

D. -23

$$-3(7x - 2) = -21x + 6$$