1. Let k be a function that is a transformation of the function h such that $k(x) = 2h(3x)$. Describe the transformations of the function h that result with the function k.

2. Let f be a function that is a transformation of the function g such that $f(x) = g(x-2) + 4$. Describe the transformations of the function g that result with the function f.

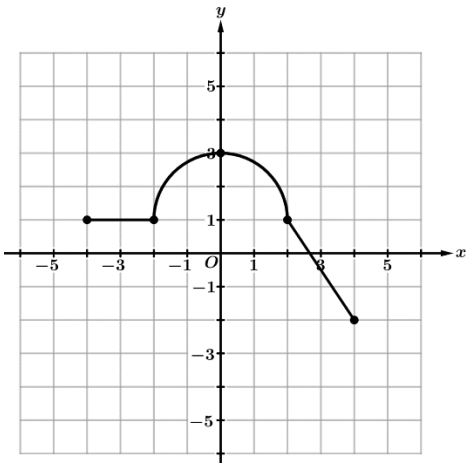
3. Let p be a function that is a transformation of the function m such that $p(x) = -m\left(\frac{x}{2}\right) - 3$. Describe the transformations of the function m that result with the function p.

4. Let r be a function that is a transformation of the function n such that $r(x) = n(-x) + 1$. Describe the transformations of the function n that result with the function r.

5. The function h is constructed by applying three transformations to the graph of f in this order: a horizontal dilation by a factor of $\frac{1}{2}$, a vertical dilation by a factor of 5, and a vertical translation by -7 units. If $h(x) = af(bx) + c$, find the values of $a,\ b,$ and c.

6. The function k is constructed by applying three transformations to the graph of m in this order: a horizontal dilation by a factor of 3, a vertical dilation by a factor of $\frac{1}{4}$, and a vertical translation by 8 units. If $k(x) = am(bx) + c$, find the values of $a,\ b,$ and c.

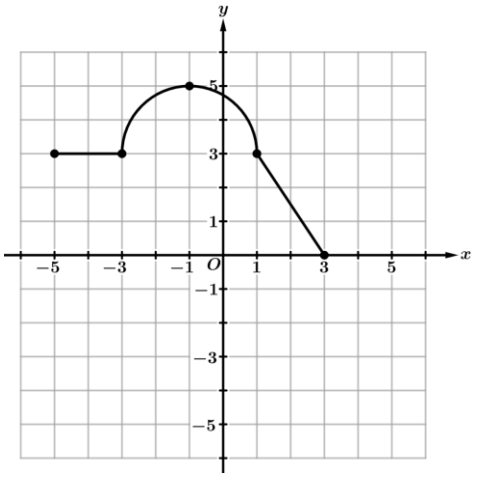
7. The function p is constructed by applying three transformations to the graph of g in this order: a vertical dilation by a factor of 2, a reflection over the x-axis, and a horizontal translation by 4 units. If $p(x) = ag(x + c)$, find the values of a and c.



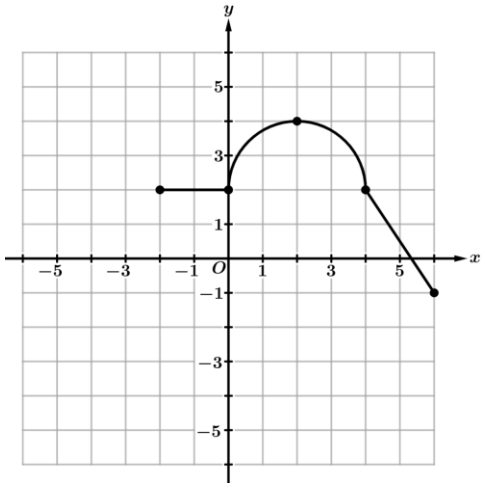
Graph of f

8. The graph of $y = f(x)$, consisting of two line segments and a semicircle, is shown for $-4 \le x \le 4$. Which of the following is the transformed graph for $y = f(x-1) + 2$?

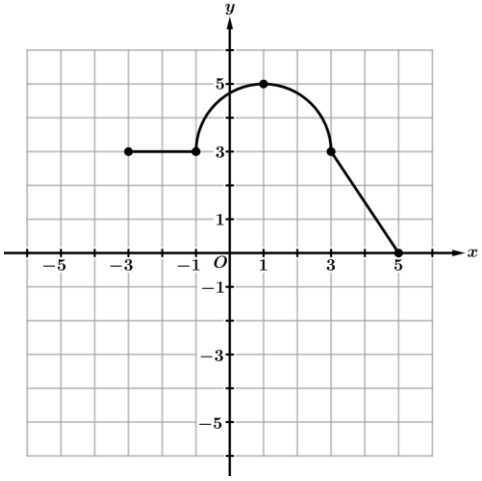
(A)



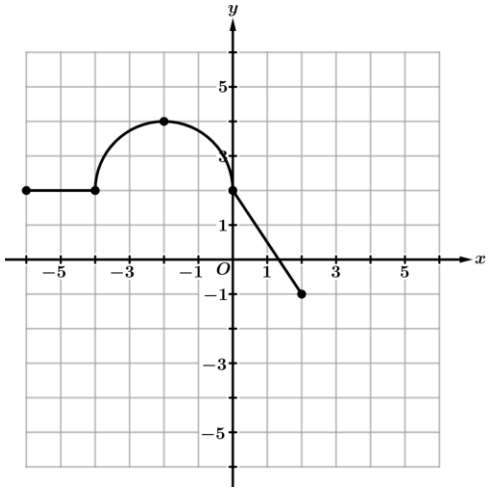
(B)

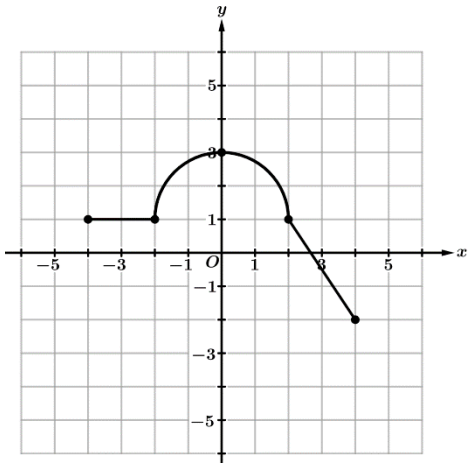


(C)



(D)

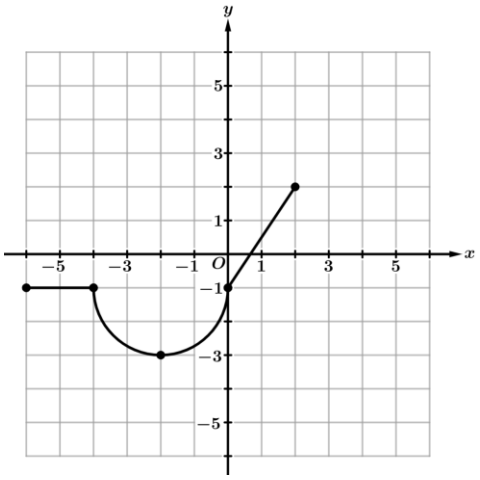




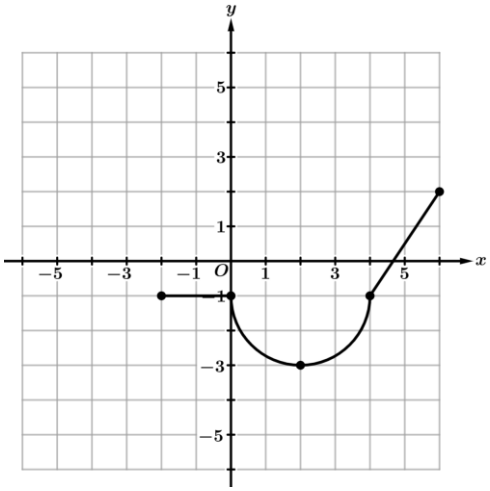
Graph of f

9. The graph of $y = f(x)$, consisting of two line segments and a semicircle, is shown for $-4 \le x \le 4$. Which of the following is the transformed graph for $y = -f(x + 2)$?

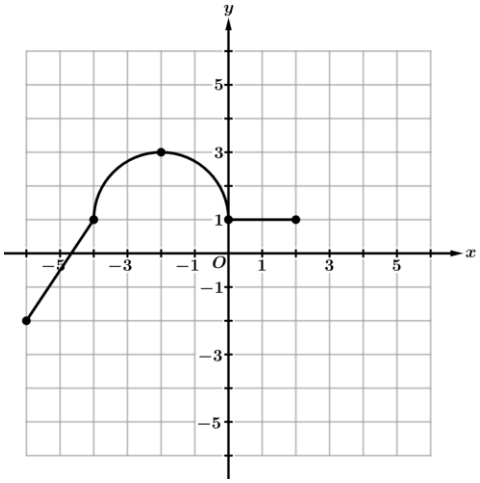
(A)



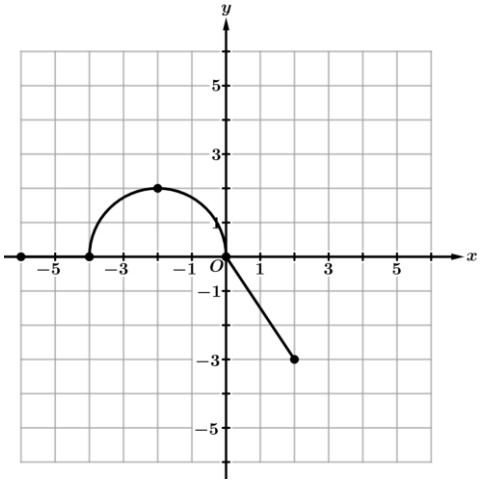
(B)



(C)



(D)



10. The function g is constructed by applying three transformations to the graph of f in this order: a horizontal dilation by a factor of 4, a vertical dilation by a factor of 3, and a vertical translation by -7 units. Which of the following equations relating g and f is correct?

(A) $g(x) = 4f(3x) - 7$

(B) $g(x) = 3f(4x) - 7$

(C) $g(x) = 3f\left(\frac{x}{4}\right) - 7$

(D) $g(x) = 3f\left(\frac{x}{4}\right) + 7$

11. The function k is constructed by applying three transformations to the graph of h in this order: a horizontal dilation by a factor of $\frac{1}{3}$, a vertical dilation by a factor of 2, and a vertical translation by 4 units. Which of the following equations relating k and h is correct?

(A) $k(x) = \frac{1}{2}h\left(\frac{x}{3}\right) + 4$

(B) $k(x) = \frac{1}{2}h(3x) + 4$

(C) $k(x) = 2h\left(\frac{x}{3}\right) + 4$

(D) $k(x) = 2h(3x) + 4$

12. The function p is constructed by applying three transformations to the graph of m in this order: a vertical dilation by a factor of 5, a reflection over the x-axis , and a horizontal translation by -2 units. Which of the following equations relating p and m is correct?

(A) $p(x) = 5m\big(-(x + 2)\big)$

(B) $p(x) = -5m(x - 2)$

(C) $p(x) = -5m(x + 2)$

(D) $p(x) = 5m\big(-(x - 2)\big)$