

1. If the graph of the function $y = \sqrt{x}$ is horizontally expanded by a factor of 3 and then translated 2 units to the right, determine the equation of this new function.

A. $y = \sqrt{3(x-2)}$

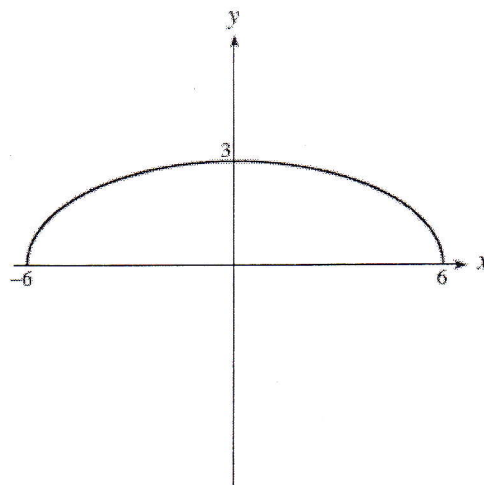
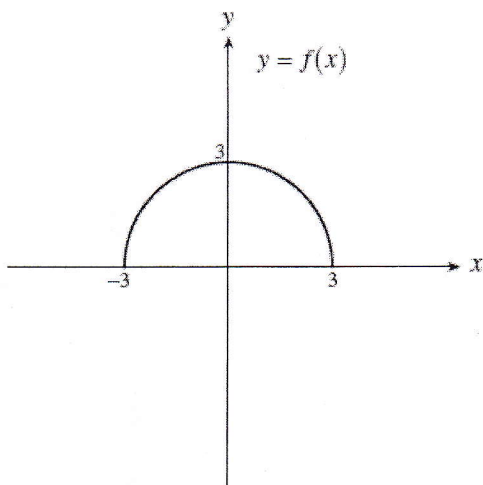
B. $y = \sqrt{\frac{1}{3}(x-2)}$

C. $y = \sqrt{3x-2}$

D. $y = \sqrt{\frac{1}{3}x-2}$

$$\begin{aligned} & \sqrt{\frac{1}{3}x-6} \\ & = \sqrt{\frac{1}{3}(x-2)} \end{aligned}$$

2. The function $y=f(x)$ is graphed to the left below. Determine the equation of the function shown to the right.



A. $y = f\left(\frac{1}{2}x\right)$

B. $y = f(2x)$

C. $y = \frac{1}{2}f(x)$

D. $y = 2f(x)$

3. Determine the equation that will cause the graph of $y = f(x)$ to expand vertically by a factor of 4 and reflect in the y -axis.

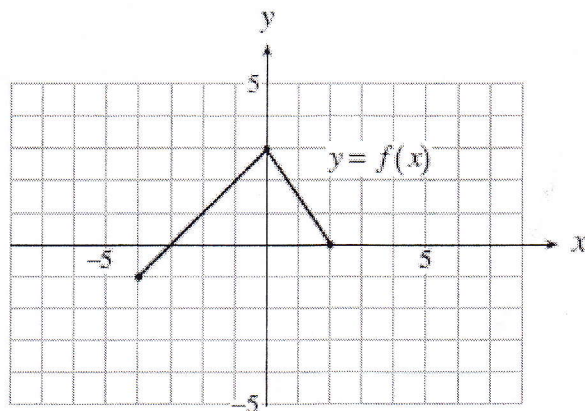
(A) $y = -4f(x)$

(B) $y = \frac{-1}{4}f(x)$

(C) $y = \frac{1}{4}f(-x)$

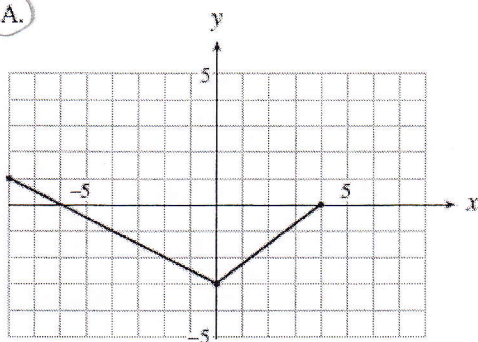
(D) $y = 4f(-x)$

4. The graph of the function $y = f(x)$ is shown below.

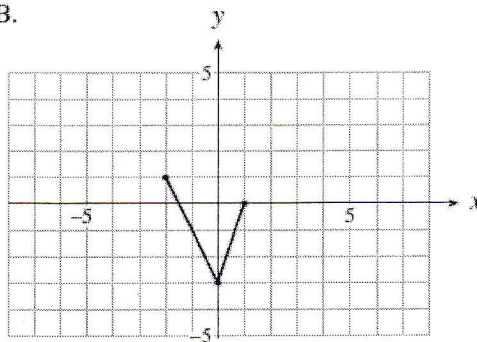


Which of the following is the graph of $y = -f\left(\frac{x}{2}\right)$?

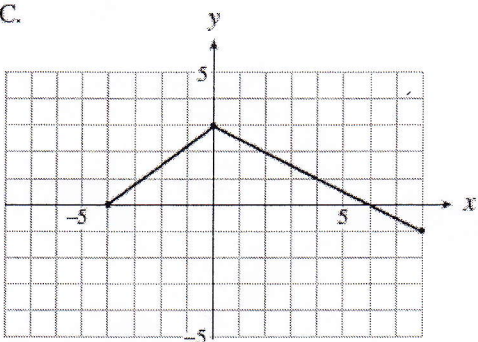
A.



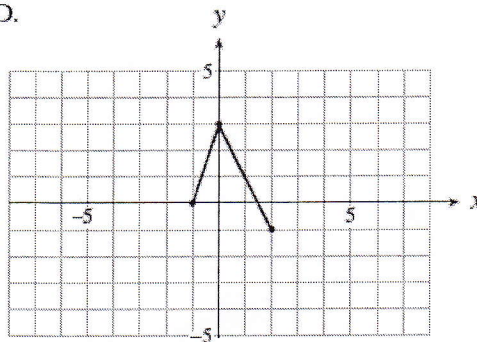
B.



C.

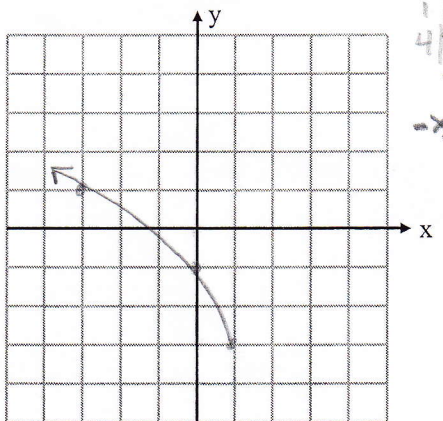


D.



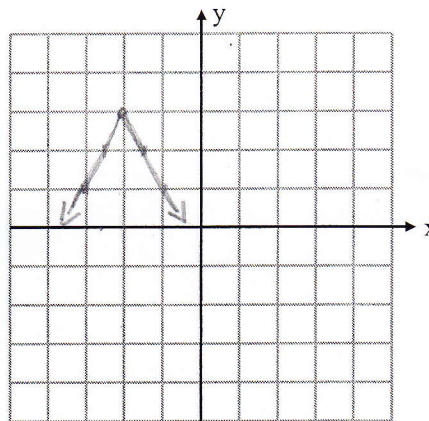
5. Graph the following functions

(a) $y = 2\sqrt{-(x-1)} - 3$



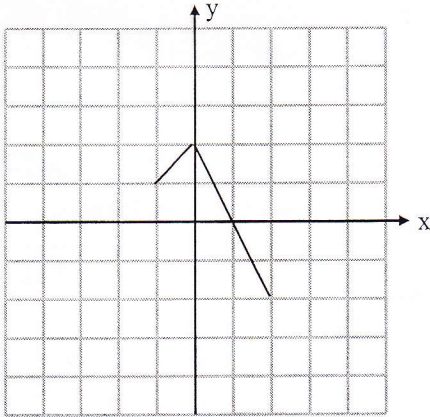
$$\begin{array}{r} x \ y \\ 0 \ 8 \\ 1 \ 1 \\ 4 \ 2 \\ \hline -x+1 \ | \ 2-3 \\ 1 \ 5 \\ 0 \ -1 \\ -3 \ 1 \end{array}$$

(b) $y = -|2x+4|+3 = -|2(x+2)|+3$

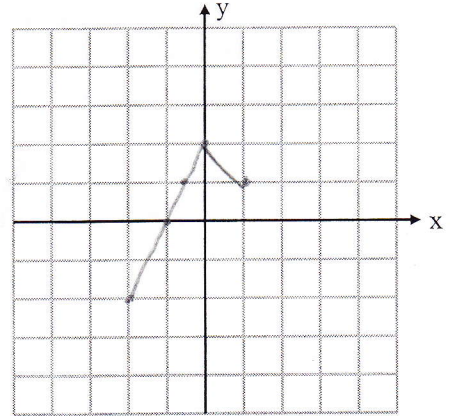


$$\begin{array}{r} x \ y \rightarrow -2x-2 \ | \ 4+3 \\ 0 \ 0 \ -2 \ 3 \\ -1 \ 1 \ -2.5 \ 2 \\ 1 \ 1 \ -1.5 \ 2 \\ -2 \ 2 \ -3 \ 1 \\ 2 \ 2 \ -1 \ 1 \end{array}$$

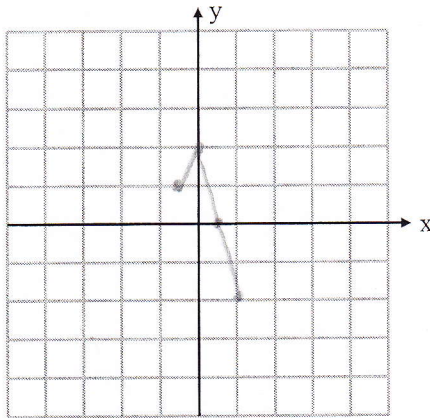
6. The function $y=f(x)$ is graphed. Graph each of the following:



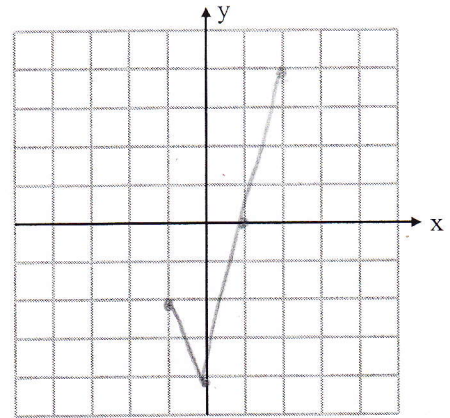
a) $y = f(-x)$



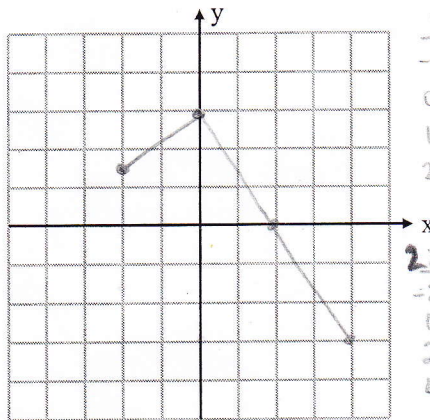
b) $y = f(2x)$



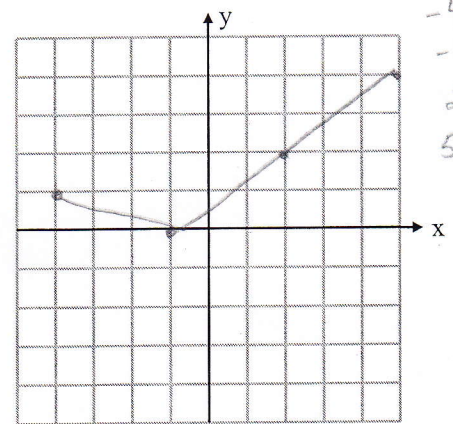
c) $y = -2f(x)$



d) $y = \frac{3}{2}f\left(\frac{1}{2}x\right)$



e) $y = -f\left(\frac{1}{3}(x+1)\right)+2$



x	y
-1	1
0	2
1	0
2	-2
2x	3/2 y
-2	1.5
0	3
2	0
4	-3

3x-1	-y+2
-4	1
-1	0
2	2
5	4

7. If the point $(3, -2)$ is on the graph of $y=h(x)$, then which point must be on the graphs for each of the following functions?

a) $y = 2h(-x)$

b) $y = -h(2x)$

c) $y = \left(\frac{1}{2}(x-2)\right) + 3$

d) $y = -h(-x) - 1$

- a) $(-3, -4)$
 b) $(1.5, 2)$
 c) $(8, 1)$
 d) $(-3, 1)$