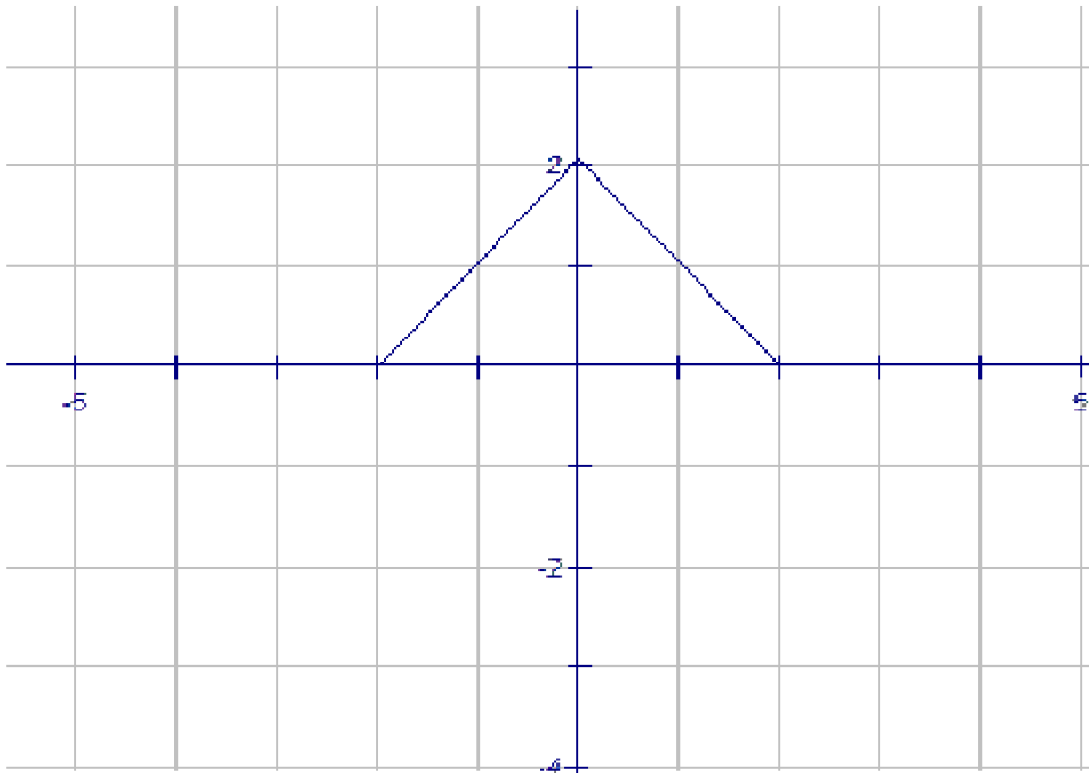


Unit 1 Review**Multiple Choice**

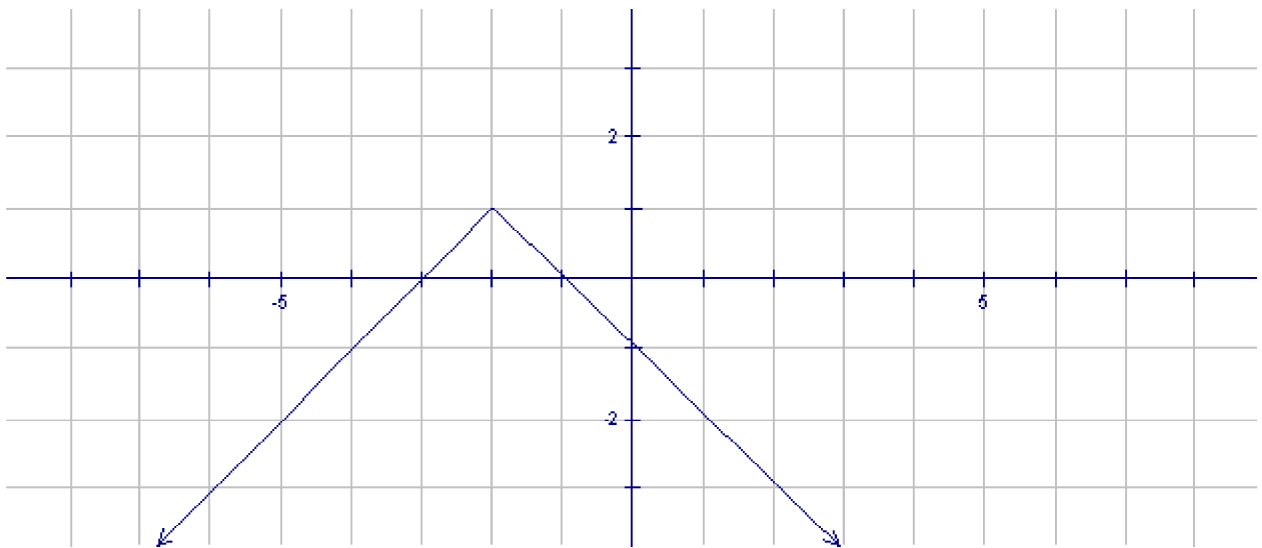
Identify the choice that best completes the statement or answers the question.

- _____ 1. The function $y = f(x)$ is transformed to $y = f(3x - 6)$. Identify the horizontal expansion or compression factor, then the translation to the graph of the function.
- a. horizontal expansion by a factor of 3, then a translation of 6 units right. c. horizontal expansion by a factor of 3, then a translation of 2 units right.
- b. horizontal compression by a factor of $\frac{1}{3}$, then a translation of 6 units right. d. horizontal compression by a factor of $\frac{1}{3}$, then a translation of 2 units right.
- _____ 2. If $(6, -5)$ is a point on the graph of $y = f(x)$, what must be a point on the graph of $y = -f(2(x+2)) - 3$?
- a. $(-1, 2)$ c. $(1, 2)$
b. $(1, -2)$ d. $(10, 2)$
- _____ 3. If $(4, -3)$ is a point on the graph of $y = f(x)$, what must be a point on the graph of $y = f(2x + 10)$?
- a. $(-8, -3)$ c. $(3, -3)$
b. $(-3, -3)$ d. $(18, -3)$
- _____ 4. If (a, b) is a point on the graph of $y = f(x)$, determine a point on the graph of $y = f(x+5) - 1$.
- a. $(a+5, b-1)$ c. $(a-5, b-1)$
b. $(a+5, b+1)$ d. $(a-5, b+1)$
- _____ 5. How is the graph of $y = \sqrt{x+2} - 5$ related to the graph of $y = \sqrt{x}$?
- a. $y = \sqrt{x}$ has been translated 2 units right and 5 units up. c. $y = \sqrt{x}$ has been translated 2 units left and 5 units up.
b. $y = \sqrt{x}$ has been translated 2 units right and 5 units down. d. $y = \sqrt{x}$ has been translated 2 units left and 5 units down.
- _____ 6. Given $f(x) = \frac{1}{3}x - 7$, determine $y = f^{-1}(x)$, the inverse of $f(x)$.
- a. $f^{-1}(x) = 3x + 7$ c. $f^{-1}(x) = 3x - 7$
b. $f^{-1}(x) = 3x + 21$ d. $f^{-1}(x) = 3x - 21$

Short Answer



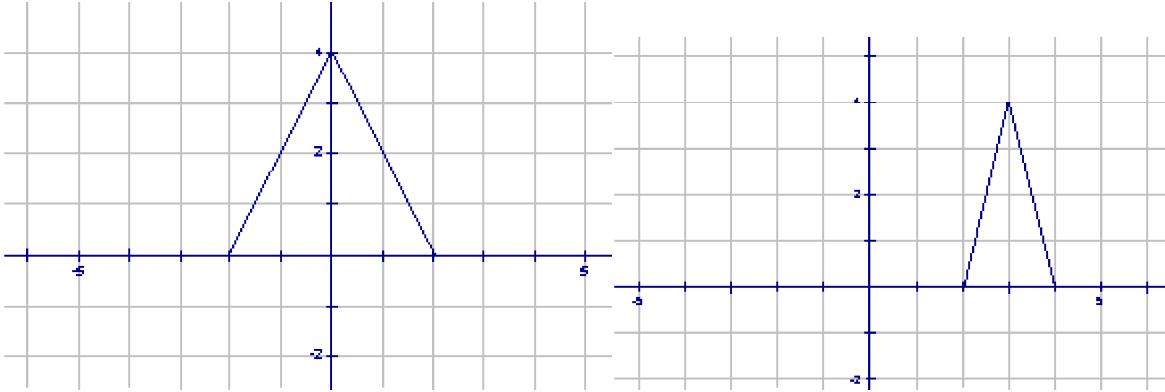
The graph of $y = f(x)$ is shown. Sketch the graph of $y = 3f(x - 2)$



The graph of $y = f(x)$ is shown above. Draw the graph that represents $y = |f(x)| + 2$.

18. If the point $(6, 10)$ is on the graph of $y = f(x)$, what point must be on the graph of $y = \frac{1}{2f(x)}$?

19.



Given the graph of $y = f(x)$ on the right, determine the equation of the function on the left.

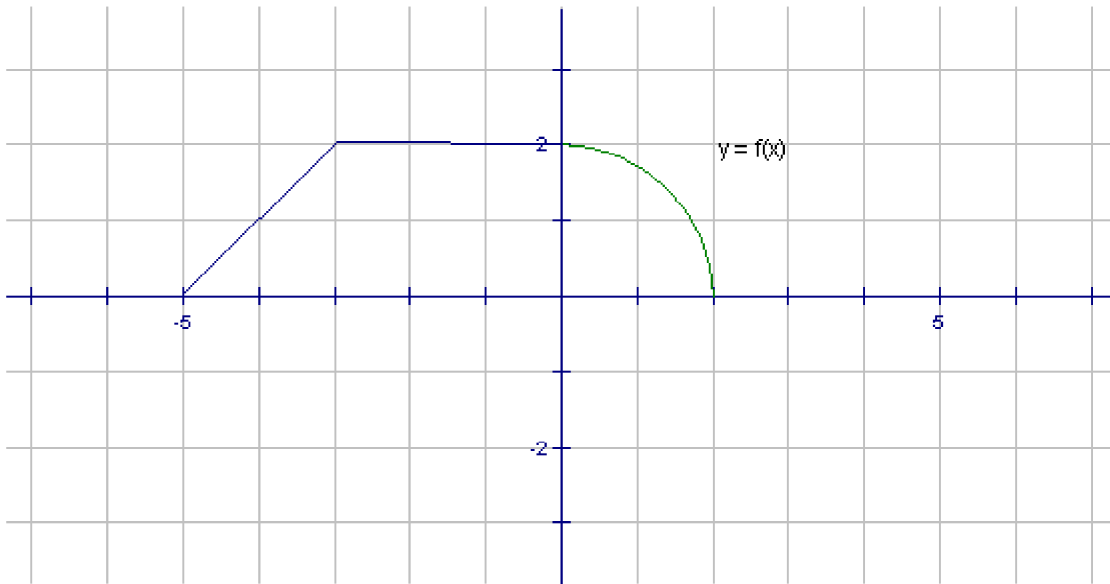
20. If the point $(2, -8)$ is on the graph of $y = f(x - 3) + 4$, what point must be on the graph of $y = f(x)$?

21. If the maximum value of the function $y = f(x)$ is 9, determine the maximum value of $y = \frac{1}{3}f\left(\frac{1}{2}x\right)$.

22. If $f(x) = \frac{3x}{x+1}$, determine the equation of $f^{-1}(x)$, the inverse of $f(x)$.

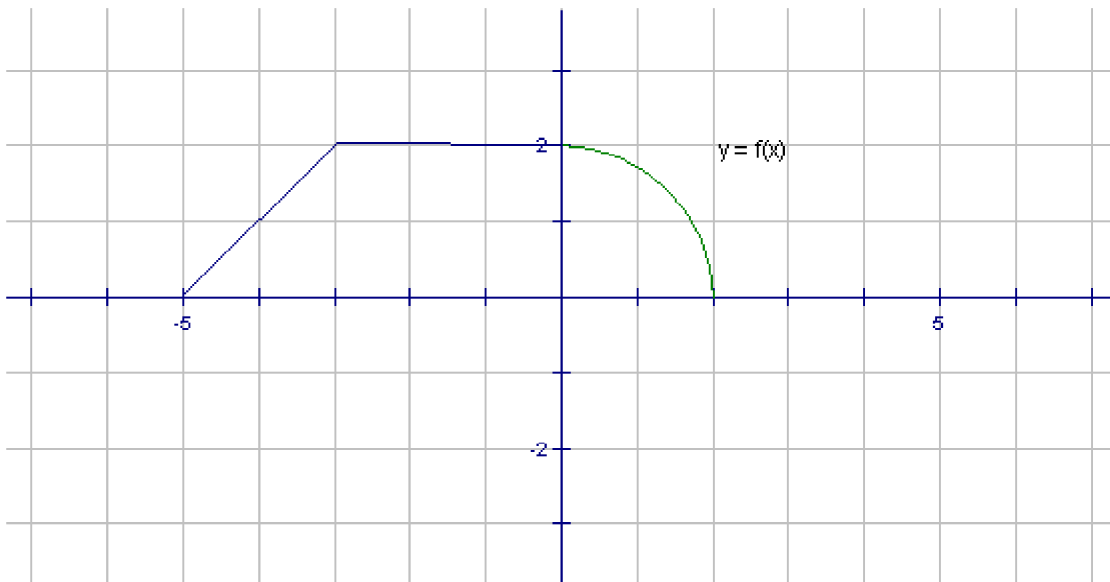
Problem

23. The graph of $y = f(x)$ is shown below.



Sketch the graph of $y = 2f(x) - 3$

24. The graph of $y = f(x)$ is shown below.



Sketch the inverse relation of $y = f(x)$.