

1. Which of the following does not represent a function of x ?

- a) $3x^2 + y = 9$ b) $x + 4y = 22$ c) $x + 2y^2 = 6$ d) $y = 5x^2 + 3$ e) $3x^2 + 3|x| = y$

2. Which of the following does not represent a function of x ?

- a) $x^2 + y^2 = 9$ b) $x + 4y = -4y$ c) $x^2 + 2y = 6$ d) $y = |x + 3|$ e) $\frac{1}{2}|x| = y$

3. A function is a reflection in the x - $axis$ and a vertical shift of 5 units up of the graph of $f(x) = |x|$.
Write an equation for the function.

4. A function is a reflection in the y - $axis$ and a vertical shift of 4 units down of the graph of $f(x) = \sqrt{x}$. Write an equation for the function.

5. Given: $f(x) = 2\sqrt{x + 3} - 4$. Write the equation of the reflection of f in the y - $axis$.

6. Given: $f(x) = x$ and $g(x) = x^2 - 7$, find $(f + g)(3)$.

7. Given $f(x) = x$ and $g(x) = x^2 - 7$, find $(fg)(3)$.

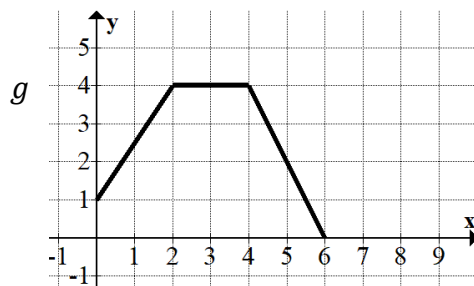
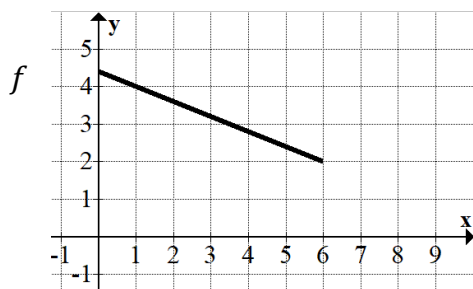
8. Given $f(x) = x$ and $g(x) = x^2$, find $\left(\frac{f}{g}\right)(-2)$.

9. Given $f(x) = x^2$ and $g(x) = \sqrt{x-6}$, find $(g \circ f)(-3)$.

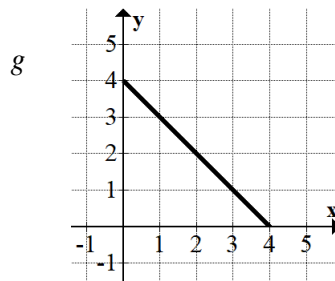
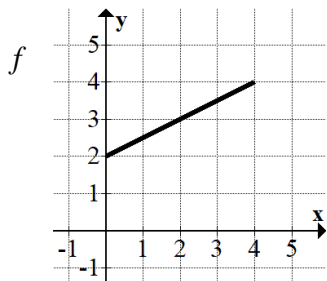
10. Given $f(x) = x^2$ and $g(x) = \sqrt{x-6}$, find $(f \circ g)(10)$.

11. Using $f(x) = \frac{x}{2} + \frac{2}{x}$ $g(x) = 4x^2 + 2x - 3$ Find $(f \circ g)(2)$

12. Use the graphs of f and g to evaluate $(f \circ g)(0)$.



13. Use the graphs of f and g to evaluate $(f \circ g)(2)$



14. Find the inverse function of $f(x) = \frac{3x+6}{x-2}$.

15. Find the inverse of the function $f(x) = \frac{x-4}{2x+1}$

16. Find the inverse of the function $f(x) = \frac{5x+7}{2x-9}$

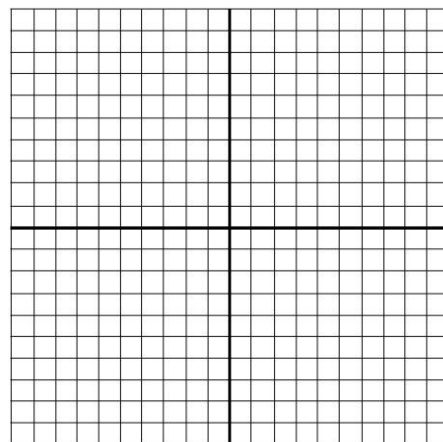
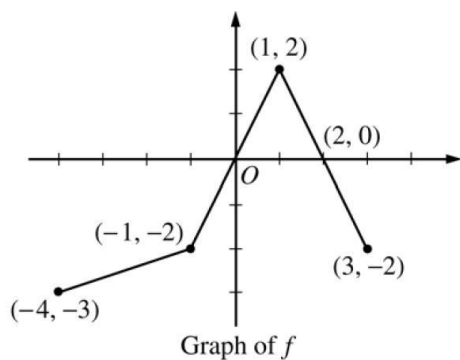
17. Transform the given function by a vertical stretch by a factor of 2: $f(x) = x^3 - 4x$

18. Transform the given function by a vertical shrink by a factor of $\frac{1}{2}$: $f(x) = 3x^2 - 4x + 6$

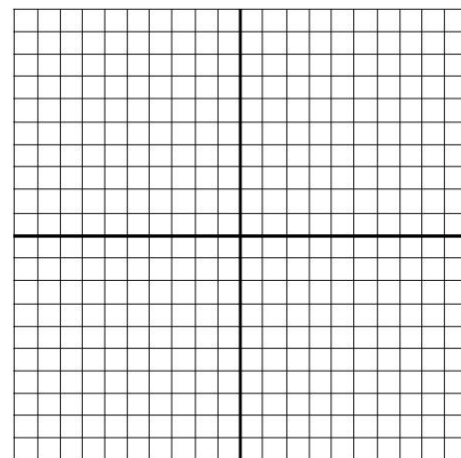
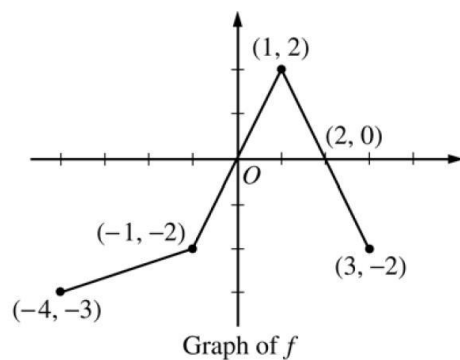
19. Transform the given function by a horizontal shrink by a factor of $\frac{1}{2}$: $f(x) = x^2 - 4$

20. Transform the given function by a horizontal stretch by a factor of 3: $f(x) = x^2 - 6x + 4$

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



22. Graph $y = -2f(x + 4)$



Find the inverse of the following functions. State the domain restrictions when necessary.

23. $f(x) = 2\sqrt{x-4} + 6$

24. $f(x) = \sqrt{x} + 2$

25. Are the following inverses? $f(x) = 2x - 6$ and $g(x) = \frac{1}{2}x + 3$

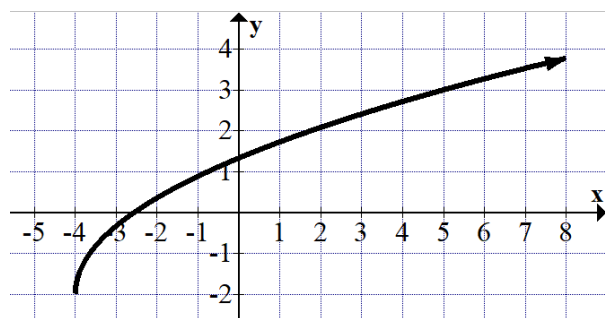
Verify your results by showing $f(g(x)) = x$ and $g(f(x)) = x$.

26. Are the following inverses? $f(x) = 3x - 2$ and $g(x) = \frac{x+2}{3}$

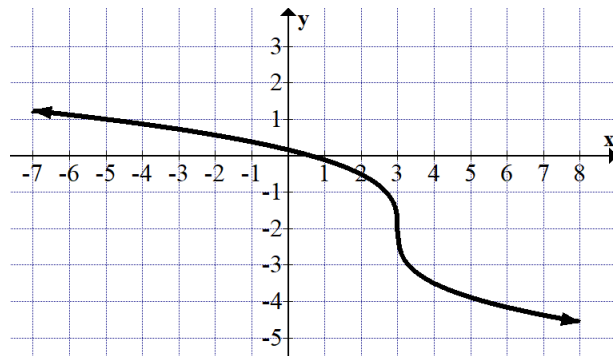
Verify your results by showing $f(g(x)) = x$ and $g(f(x)) = x$.

Write the equation for the given functions.

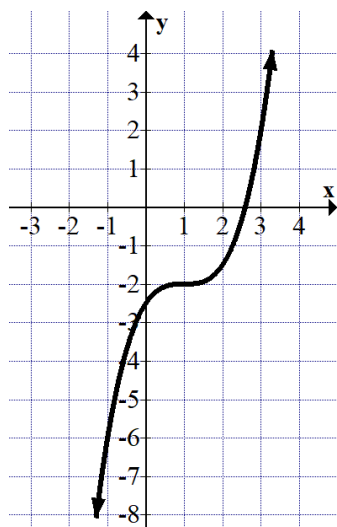
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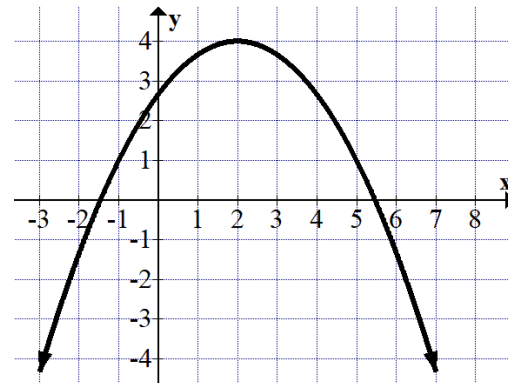
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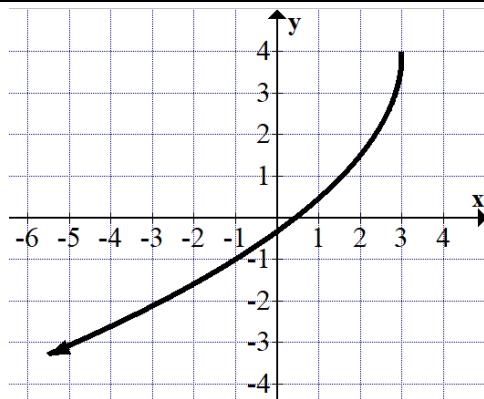
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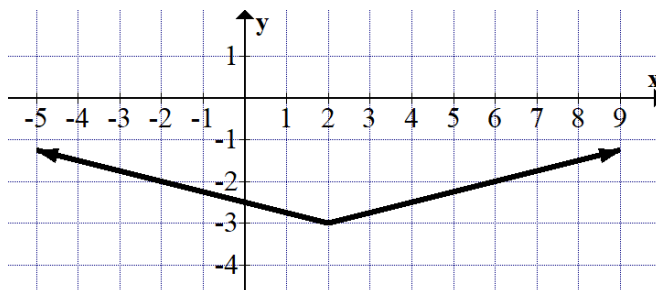
30.



31.



32.



33. Write the linear function that passes through $f(3) = 7$ and $g(1) = -8$.

34. If $f(x) = x + 3$ and $g(x) = \sqrt{8 - x}$, then what is the domain of $\frac{f}{g}$?

35. If $f(x) = \begin{cases} -4x + 7 & \text{if } x > 3 \\ (x - 3)^2 & \text{if } x \leq 3 \end{cases}$, then find $f(3)$ and $f(-2)$.

36. Given: $f(x) = 2x^2 - 3x$ and $g(x) = -x + 7$, find $(f \circ g)(x)$.

37. State the type of transformation demonstrated.

a) $4f(x)$

b) $f(4x)$

c) $f\left(\frac{x}{4}\right)$

d) $\frac{1}{4}f(x)$

Extra Practice:

Pg. 106-108: #67, 68, 70-78, 81, 83, 87-90, 93, 95-99