Inverse Functions Worksheet

Name: _____ **Date:** _____

1. Which pair of functions are inverses of each other?

   A. $y = \frac{1}{2}x + 2, y = 2x - 4$

   B. $y = 2x - 5, y = \frac{1}{2}x - \frac{1}{5}$

   C. $y = \frac{1}{4}x + 3, y = 4x - 3$

   D. $y = 4x + 1, y = x + 4$

2. Which pair of functions are inverses of each other?

   A. $f(x) = 3x - 2,\ g(x) = \dfrac{x+2}{3}$

   B. $f(x) = 6x + 2,\ g(x) = 2x - 6$

   C. $f(x) = \frac{1}{3}x + 2,\ g(x) = 3x - 2$

   D. $f(x) = 4x - \frac{2}{7},\ g(x) = \dfrac{2x+7}{4}$

3. Which pair of functions are inverses of each other?

   A. $f(x) = -x - 3,\ g(x) = x + 3$

   B. $f(x) = \frac{1}{8}x - \frac{3}{2},\ g(x) = \frac{2}{3} + 8$

   C. $f(x) = 4x - 3,\ g(x) = 3x - 4$

   D. $f(x) = \frac{1}{2}x + 3,\ g(x) = 2x - 6$

4. Which pair of functions are inverses of each other?

   A. $y = \dfrac{1}{2}x^2 - 1, x \geq 0; \quad y = 2\sqrt{x+1}$

   B. $y = 4x^2 - 3, x \geq 0; \quad y = \dfrac{\sqrt{x}}{2} + 3$

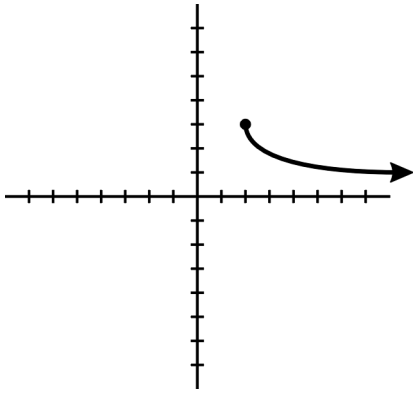
   C. $y = 2x^2 + 6, x \geq 0; \quad y = \sqrt{\dfrac{x-6}{2}}$

   D. $y = -x^2 - 5, x \leq 0; \quad y = \sqrt{-x+5}$

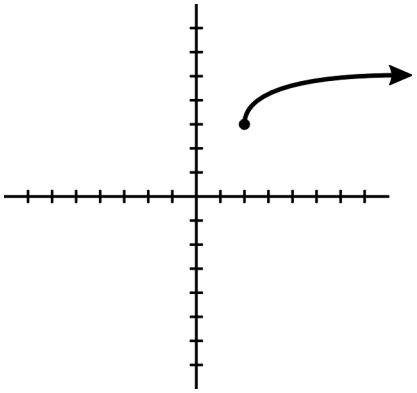
5. If $f(x) = \dfrac{2}{x-1}$ and $g(x) = \dfrac{2+x}{x}$, are f and g inverse functions? Why or why not?

6. Which of the following is the graph of $f^{-1}(x)$ if $f(x) = \sqrt{x-2} + 3$?

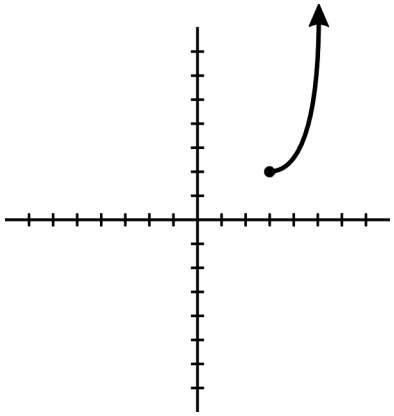
A.



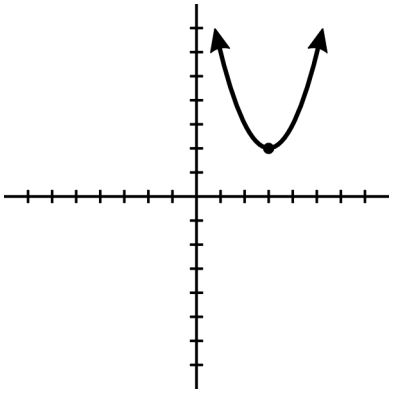
B.



C.



D.



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7. The data below is for a certain function $h(x)$.

x	$h(x)$
-3	21
1	3
4	1
8	-5

Through which of the following points does the inverse function $h^{-1}(x)$ have to pass?

A. $(-21, 3)$ B. $(1, 4)$

C. $(5, 8)$ D. $(3, -1)$

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1.
Answer: A
Objective: F.BF.04B

2.
Answer: B
Objective: F.BF.04B

3.
Answer: D
Objective: F.BF.04B

4.
Answer: C
Objective: F.BF.04B

5.
Answer: Answers may vary: Example:
Yes, $f \circ g = \frac{2}{\frac{2+x}{x}-1} = \frac{2x}{2+x-x} = x$,
$g \circ f = \frac{2+\frac{2}{x-1}}{\frac{2}{x-1}} = \frac{2x-2+2}{2} = x$, $f \circ g = x$ and $g \circ f = x$ and no domain restrictions are necessary.
Objective: F.BF.04B

6.
Answer: C
Objective: F.BF.04C

7.
Answer: B
Objective: F.BF.04C