

Key

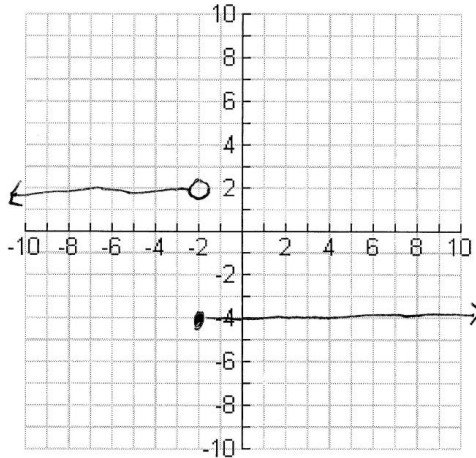
Evaluate each piecewise function for the following.

$$1. f(x) = \begin{cases} 8 & \text{if } x \leq -3 \\ 3 & \text{if } -3 < x < 3 \\ 7 & \text{if } x \geq 3 \end{cases} \quad f(-4) = \underline{8} \quad f(-3) = \underline{8} \quad f(3) = \underline{7} \quad f(6) = \underline{7}$$

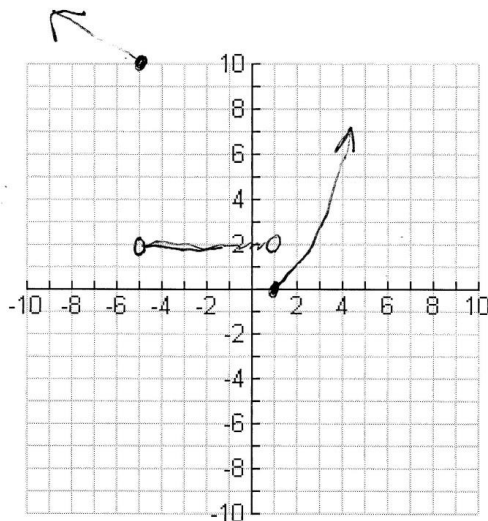
$$2. g(x) = \begin{cases} 2x-3 & \text{if } x < 3 \\ -x+3 & \text{if } 3 \leq x < 6 \\ -x^2 & \text{if } x \geq 6 \end{cases} \quad g(-4) = \frac{2(-4)-3}{-11} \quad g(3) = \frac{0}{-(3)+3} \quad g(6) = \frac{-(6)^2}{-36}$$

Graph each function.

$$3. f(x) = \begin{cases} 2 & \text{if } x < -2 \\ -4 & \text{if } x \geq -2 \end{cases}$$



$$4. g(x) = \begin{cases} -x+5 & \text{if } x \leq -5 \\ 2 & \text{if } -5 < x < 1 \\ x^2-1 & \text{if } x \geq 1 \end{cases}$$



# KEY Exam D

(2)

Review

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**Given:**  $f(x) = 2x - 3$  and  $g(x) = x^2 - 2x + 3$ , find each function.

5.  $(f+g)(x) = \underline{x^2}$   $f(x) + g(x)$

6.  $(f-g)(x) = \underline{-x^2 + 4x - 6}$   $f(x) - g(x)$

7.  $(g-f)(x) = \underline{x^2 - 4x + 6}$   $g(x) - f(x)$

**Given:**  $f(x) = 2x + 1$  and  $g(x) = 2x^2 - 5x - 3$ , find each function. State the domain of each.

8.  $(fg)(x) = \underline{4x^3 - 8x^2 - 11x - 3}$  Domain All REALS  
 $f(x) \cdot g(x)$

9.  $\left(\frac{f}{g}\right)(x) = \underline{\frac{1}{x-3}}$  Domain All REALS w/  $x \neq 3$   $x \neq -\frac{1}{2}$   
 $\frac{f(x)}{g(x)} \quad (x-3)(2x+1)$

10.  $\left(\frac{g}{f}\right)(x) = \underline{x-3}$  Domain All REALS w/  $x \neq -\frac{1}{2}$   
 $\frac{g(x)}{f(x)}$

**Given:**  $f(x) = \frac{1}{2}x + 4$  and  $g(x) = x^2 - x + 2$ , find each value.

11.  $f(g(-2)) = \underline{8}$       12.  $g(f(-2)) = \underline{8}$       13.  $g(f(-6)) = \underline{2}$   
 $g(-2) = 8$                        $f(-2) = 3$                        $f(-6) = 1$

**Given:**  $f(x) = \frac{1}{x-4}$  and  $g(x) = \sqrt{x-2}$ , find each function. State the domain of each.

14. Domain of  $f = \underline{\text{All } x \text{ w/ } x \neq 4}$       Domain of  $g = \underline{x \geq 2}$

Write the composition function  $f(g(x)) = \underline{\frac{\sqrt{x-2} + 4}{x-18}}$

Then state the domain of  $f(g(x))$  All  $x$  w/  $x > 2$  AND  $x \neq 18$

Review 9.2, 9.4 and 9.5

Key

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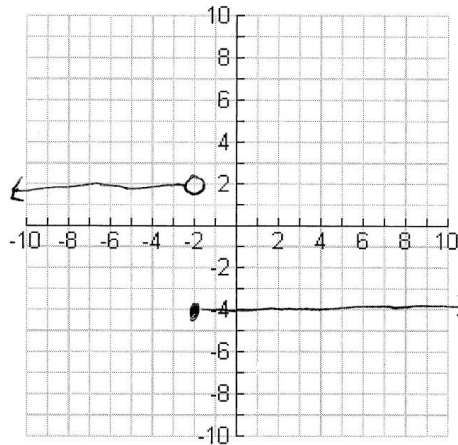
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Graph each function.

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