College Algebra	**Name:** _____
Study Guide 8	**Class:** _____
Due Date: _____	**Score:** _____

No Work ⇔ No Points

Use Pencil Only ⇔ Be Neat & Organized

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1. Given $f(x) = 2x - 5$ and $g(x) = 2x + 5$, find

(a) (2 points) $(f \cdot g)(x)$

(a) _____

(b) (2 points) $(f \circ g)(x)$

(b) _____

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2. Given $f(x) = \frac{2}{3}x + 4$ and $g(x) = \frac{3}{2}x - 6$, find

(a) (2 points) $(f \circ g)(x)$

(a) _____

(b) (2 points) $(g \circ f)(x)$

(b) _____

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3. Find the inverse of the following functions:

(a) (2 points) $f(x) = 2x - 5$

(a) _____

(b) (2 points) $f(x) = \frac{1}{2}x + 3$

(b) _____

(c) (3 points) $f(x) = \sqrt{x - 3}$

(c) _____

(d) (3 points) $f(x) = \sqrt[3]{x + 4}$

(d) _____

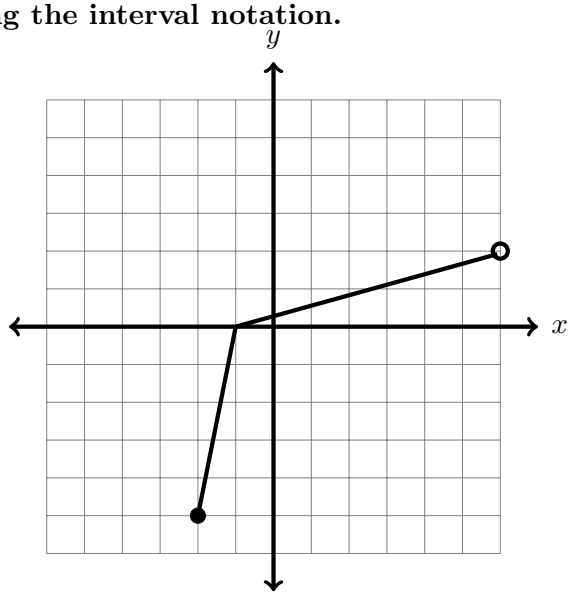
(e) (3 points) $f(x) = x^2 - 4, x \geq 0$

(e) _____

(f) (4 points) $f(x) = \sqrt{x + 1} - 2$

(f) _____

4. (5 points) Consider the graph below, draw its inverse if it exists, then complete the chart below using the interval notation.



	Domain	Range
Given graph		
Inverse of the graph		

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5. (4 points) Find the inverse of $f(x) = \dfrac{2}{x+1}$, and then complete the chart below.

5. _____

	Domain	Range
$f(x)$		
$f^{-1}(x)$		

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6. Express the domain of the following functions in interval notation:

(a) (3 points) $f(x) = \sqrt{16 - x^2}$

(a) _____

(b) (3 points) $f(x) = \dfrac{x}{\sqrt[3]{x-1}}$

(b) _____

(c) (3 points) $f(x) = \dfrac{1}{x^2 + 25}$

(c) _____

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7. Algebra Review Problems:

(a) (2 points) Factor $3x^4 - 16x^3 - 35x^2$**.**

(a) _____

(b) (3 points) Solve $(x^2 - 25)(x^2 - 100) = 0$ **by using the zero-factor theorem.**

(b) _____

(c) (2 points) Simplify $(5x - 3)^2 + (5x + 3)^2$**.**

(c) _____
