

Name \_\_\_\_\_

Total Possible Points = 20 Points

**Show all your work.**

1. Let  $g(x) = x^2 - x - 6$  and  $f(x) = \frac{-1}{3}x + 10$  (3 points)

a. Find x when $f(x) = 6$	b. Find x when $g(x) = 0$	c. Find $g(a+1)$
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2. Solve the following: (4 Points)

a) $x^2 - 81 = 0$	b) $y^2 - 6y = 7$	c) $9x^2 - 64 = 0$	$x^2 - 3x = 40$
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3) For the linear function  $-5x + 5y = 30$   
**SHOW work** to find each of the following (2 points)

a) The slope is \_\_\_\_\_

b) The y-intercept is \_\_\_\_\_

The x-intercept is \_\_\_\_\_

4. The length of a rectangular room is 6 feet more than its width. If the perimeter of the room is 200 feet, find the width and length of the room. (3 points)



5. Perform the indicated operations. Simplify your answers.

(4 pts)

a) $\left(\frac{x^2}{y^6}\right)^{\frac{3}{2}}$	b) $\sqrt{x} \cdot \sqrt[3]{x}$
c) $\sqrt[3]{x^7}$	d) $-5x^{-3}$

6. Solve the following equations:

(4 points)

a.  $\frac{2x}{x+4} = 4$

b.  $\frac{3x-1}{7} = \frac{2x+3}{2}$