

**Math 120
Exam #3
Spring '09**

Show all work (and answers) on the blank paper provided. Write nothing on this paper other than your name.

Name:

1	10	
2	10	
3	10	
4	10	
5a	5	
5b	5	
5c	10	
6a	10	
6b	10	
6c	10	
7a	10	
7b	10	
7c	10	
8	10	
9	10	
10	10	
11	10	
total	160	
curve		
%		

- 1) Write $3x^2 + 3y^2 + 33x - 15y = 0$ in center-radius form, and find the center and radius of the circle.
- 2) Write an equation (in slope-intercept form) for the line through $(-9, 2)$ with slope $5/3$.
- 3) Write an equation (in standard form) for the line through $(-8, -12)$ and parallel to $2y - 4x = 10$.
- 4) Write an equation (in slope-intercept form) for the line through $(3, 0)$ and perpendicular to $3x - y = -18$.
- 5) Let $f(x) = |x + 12| - 5$ and $g(x) = \frac{x^2 - 16}{2x + 8}$. Find the following.
 - a. $f(-2)$
 - b. $g(0)$
 - c. $Dom(g)$ & $Ran(f)$
- 6) Let $f(x) = \sqrt{36 - x^2}$ and $g(x) = \sqrt{x + 2}$.
 - a. Find $Dom(f)$ & $Dom(g)$
 - b. Find fg and give its domain.
 - c. Find f/g and give its domain.
- 7) Let $f(x) = \sqrt{3x}$ and $g(x) = 16 - \sqrt{2x - 4}$.
 - a. Find $Dom(f)$ & $Dom(g)$
 - b. Find $f \circ g$ and give its domain.
 - c. Find $g \circ f$ and give its domain.
- 8) Given $\Psi(x) = (4 - 3x)^{-10}$, find two functions f and g such that $f \circ g = \Psi$.
- 9) Show that the function $h(x) = (x - 2)^2(x + 1)^4$ is not one-to-one.
- 10) Find the inverse of $p(x) = -2x + 9$.
- 11) Find the inverse of $q(x) = \frac{x - 1}{x + 2}$