Math 120
Exam #3
Spring '08

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**	
4a	**10**	
4b	**10**	
5a	**10**	
5b	**10**	
6	**10**	
7	**10**	
8a	**10**	
8b	**10**	
8c	**10**	
9a	**10**	
9b	**10**	
10	**10**	
11a	**10**	
11b	**10**	
total	**170**	
curve		
%		

1) Find the distance between the points $(6, -2)$ & $(4, 6)$.

2) The equation $2x^2 - 24x + 2y^2 + 20y + 50 = 0$ represents a circle. Find the center and radius by getting the equation into center-radius form.

3) Find the equation of the line through $(-2, 8)$ and is perpendicular to $5x - 2y = 10$. Write the equation in slope-intercept form.

4) Write an equation for the line described.
  a. Through $(-4, 1)$, $m = \frac{2}{7}$.
  b. Through $(9, -7)$, undefined slope.

5) Let $f(x) = 2x - 7$ & $h(x) = -x^2 + 5x - 3$. Find the following.
  a. $f(c - 3)$
  b. $h(4)$

6) Given that $\varphi(x) = \dfrac{2}{x - 1}$, find the domain and range of φ.

7) Given that $r(x) = \sqrt[4]{x^2 - x - 2}$, find the domain of r.

8) Let $f(x) = \sqrt{x + 5}$ and $g(x) = \sqrt{12 - x}$.
  a. Find the domain of f and g.
  b. Find fg and give its domain.
  c. Find f/g and give its domain.

9) Let $f(x) = \sqrt{x - 10}$, $g(x) = \sqrt{x + 8}$, and $h(x) = -\dfrac{8}{x}$.
  a. Find $f \circ g$ and give its domain.
  b. Find $h \circ g \circ f$.

10) Show that the function $f(x) = |x - 6| + 22$ is not one-to-one.

11) Find the inverse for each function (no need to verify one-to-oneness).
  a. $q(x) = \dfrac{4x}{x - 3}$
  b. $z(x) = 2 + \sqrt{x - 5}$