

Score: \_\_\_\_\_

Name: \_\_\_\_\_

## Worksheet 2 - Sections 12.5 - 13.3 (Due Tues, Sept 16)

**Math 2110Q – Fall 2014**

**Professor Hohn**

You must show all of your work to receive full credit!

1. Find an equation of the plane that passes through the point  $(-1, 2, 1)$  and contains the line of intersection of the planes  $x + y - z = 2$  and  $2x - y + 3z = 1$ .

2. Find an equation of the plane that passes through the points  $(0, -2, 5)$  and  $(-1, 3, 1)$  and is perpendicular to the plane  $2z = 5x + 4y$ .

3. Find  $f'(2)$ , where  $f(t) = \mathbf{u}(t) \cdot \mathbf{v}(t)$ ,  $\mathbf{u}(2) = \langle 1, 2, -1 \rangle$ ,  $\mathbf{u}'(2) = \langle 3, 0, 4 \rangle$ , and  $\mathbf{v}(t) = \langle t, t^2, t^3 \rangle$ .

4. Let  $C$  be the curve of intersection of the parabolic cylinder  $x^2 = 2y$  and the surface  $3z = xy$ . Find the exact length of  $C$  from the origin to the point  $(6, 18, 36)$ .