Name: ID #: Section #:

(**1**) Consider the line L given by parametric equations $x = 2t,\ y = 2 - t,\ z = 1 - 2t$ and the point $A(-1, 2, 4)$.

(**a**) [4pts] Find an equation for the plane that contains the line L and the point A.

(**b**) [2.5pts] Find the distance from A to the line L.

(**2**) [3.5pts] Find and sketch the domain of $F(x, y) = \sqrt{x} + \ln(4 - x^2 - y^2)$.

Name: ID #: Section #:

(**1**) Consider the planes $P_1: \ z = 2x - 2y + 1$ and $P_2: \ z = 2y - x + 2$.

(**a**) [4pts] Find parametric equations for the line of intersection between P_1 and P_2.

(**b**) [2.5pts] Find the distance from $A(1, -1, 2)$ to the plane P_1.

(**2**) [3.5pts] Find and sketch the domain of $F(x, y) = \dfrac{\sqrt{x}}{\sqrt{4 - x^2 - y^2}}$.

Name: ID #: Section #:

(**1**) Consider the planes $P_1: \ x - 2y - 2z = 1$ and $P_2: \ x - 2y - 2z = 4$.

(**a**) [3.5pts] Find parametric equations for the line through the point $A(-1, 2, 3)$ and perpendicular to P_1.

(**b**) [3pts] Find the distance from the plane P_1 to the plane P_2.

(**2**) [3.5pts] Find the domain and range of $F(x, y) = \dfrac{2}{\sqrt{9 - x^2 - y^2}}$.