Name: ID #: Section #:

1) [**4pts**] Find an equation of the plane that contains the line $x = 3 + 2t$, $y = t$, $z = 8 - t$ and is parallel to the plane $2x + 4y + 8z = 17$.

2) [**3pts**] Classify and sketch the surface $z^2 = 4x^2 + 9y^2 + 36$.

3) [**3pts**] Find and sketch the domain of $f(x, y) = \sqrt{x + y}$.

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1) (a) [**2.5pts**] Find parametric equations for the line through $(2, 4, 6)$ that is perpendicular to the plane $x - y + 3z = 7$.

(b) [**1.5pts**] In what points does this line intersect the coordinate planes?

2) [**3pts**] Find and sketch the domain of $f(x, y) = \ln(x + y - 1)$.

3) [**3pts**] Classify and sketch the surface $z^2 = 4x^2 + 9y^2 + 36$.