

**Directions:**

1. Section: Math251 007
2. Write your name with one character in each box below.
3. Show all work. No credit for answers without work.

1. [**3 points**] Give parametric equations for the line through  $(2, 1, -5)$  that is parallel to  $\langle 1, 5, -1 \rangle$ .
  
2. [**3 points**] Give a vector equation for the line at the intersection of planes  $x+2y-5z = 5$  and  $3x - 2y + z = -1$ .
  
3. Let  $S$  be the plane  $2x - y + z = 1$  and let  $P$  be the point  $(4, 2, 1)$ .
  - (a) [**3 points**] Find the distance between  $S$  and  $P$ .
  
  - (b) [**1 point**] Find the point on  $S$  that is closest to  $P$ .