

MATH 275

September 3, 2007

Names _____

Please work in groups with no more than four people and complete this worksheet during class. Hand in one worksheet for each group.

1. Do the following points lie on the plane $9x + y - 5z = 16$?

(a) $(1, 2, -1)$

(b) $(5, -1, -2)$

(c) $(1, -4, 3)$

2. Consider the line

$$x = 3 + 8t$$

$$y = 4 + 5t$$

$$z = -3 - t$$

and the plane $x - 3y + 5z = 12$. Are they parallel, or will they intersect?

Hint: Consider a vector parallel to the line and a vector perpendicular to the plane.

3. Determine if the following planes are parallel or if they intersect.

Hint: Consider their normal vectors.

(a)

$$2x - 4y + 4z = 7$$

$$6x + 2y - 3z = 2$$

(b)

$$x + 2y - 2z = 3$$

$$2x + 4y - 4z = 7$$