

# Planes.

Fall 2015

Attendance Quizzes

September 16, 2015

# Practice Quiz 4 Planes

Consider the planes:

$$H_1 : 3x - 4y - z = 10, H_2 : 3x - 4y + z = 12, H_3 : -3x + 4y + z = 16$$

Find the distance between  $H_1$  and  $H_2$ .

**Answer:** 0, since their normals are not proportional.

Find the distance between  $H_1$  and  $H_3$ .

**Answer:** Rewrite the two equations to match the normals:

$3x - 4y - z - 10 = 0, 3x - 4y - z + 16 = 0$ . Thus,  $(0, 0, 0)$  is between them and so we add the distance of the planes from  $(0, 0, 0)$ . Thus:  $\frac{(10+16)}{\sqrt{3^2+4^2+1^2}} = \sqrt{26}$ .