

## WEDNESDAY 1ST OCTOBER : LINES AND PLANES

Reading: sections 9.5 and 9.6

Homework: see [www.courses.fas.harvard.edu/~math21a/](http://www.courses.fas.harvard.edu/~math21a/)

### 1. LINES

(1) Find an equation for the line through the points  $(2, 0, -1)$  and  $(1, 2, 1)$ .

(2) Are the following lines parallel? Do they meet? If so, where?

$$x = t - 2$$

$$y = 4 - 2t$$

$$z = 4t - 8$$

$$x = 1 - s$$

$$y = 4s - 4$$

$$z = 3 - 3s$$

(3) Are the following lines parallel? Do they meet? If so, where?

$$x = t - 2$$

$$y = 4 - t$$

$$z = 4t - 8$$

$$x = s + 1$$

$$y = s - 1$$

$$z = 3s + 2$$

## 2. PLANES

(1) Find an equation for the plane which passes through the points

$$P = (1, 1, 0)$$

$$Q = (0, 2, 0)$$

$$R = (0, 1, 2)$$

(2) Where does this plane meet the line from question 1 on the other side of the worksheet?