

MATH275-002
Second Written Assignment
Due at class time
Tuesday, 7 September

- (1) Find an equation of the plane through the three points $(-1, 2, 2)$, $(3, 1, 4)$ and $(-3, 3, -3)$
- (2) The planes given by the equations

$$2x - 3y + z = 7$$

and

$$5x + 6y + 2z = 24$$

intersect in a line. Find a vector equation for that line.

- (3) Find parametric equations for the line through the point $(-1, 2, 1)$ that is perpendicular to the plane with equation

$$2(x + 2) + 6(y - 1) + 4(z - 2) = 0$$

Where does this line intersect the plane?

- (4) Find the point of intersection of the lines

$$\mathbf{r}_1(t) = \langle 2, 3, 5 \rangle + t\langle 1, 2, 3 \rangle$$

$$\mathbf{r}_2(t) = \langle -5, 1, 8 \rangle + t\langle 3, 2, 1 \rangle$$

and an equation of the plane containing the lines.

- (5) Let $\mathbf{r}(t) = \langle \cos(3t), t + \sin(3t), \tan(t) \rangle$. Find $\mathbf{r}'(\pi/6)$