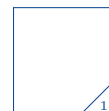


FORENAME: SURNAME: STUDENT NO: 

2018–19 Autumn

MATH115 Basic Mathematics – Homework 8

N. Course

DEADLINE: Tuesday 18 December 2018, 3pm**Exercise 36 (Lines).**

- (a) Find parametric equations for the line through the points $P(1, 2, 3)$ and $Q(5, 4, 3)$

- (b) Find parametric equations for the line which passes through the point $P(2, 4, 5)$, and which is perpendicular to the plane $3x + 7y - 5z = 21$.

Exercise 37 (Planes).

- (a) Find an equation for the plane passing through the points $A(1, 0, 0)$, $B(0, 2, 0)$ and $C(0, 0, 3)$.

- (b) Find an equation for the plane which contains the following intersecting lines

LINE 1: $x = t$, $y = 3 - 3t$, $z = -2 - t$.

LINE 2: $x = 1 + s$, $y = 4 + s$, $z = -1 + s$.

Exercise 38 (Intersecting Line and Plane). Find the point where the line $x = -3 + t$, $y = -9 + 3t$, $z = 8 - t$ intersects the plane $20x + y + 8z = 100$.

Exercise 39 (Distances). Find the distance from the point $S(2, 1, -1)$ to the line $x = 2t$, $y = 1 + 2t$, $z = 2t$.

Exercise 40 (Distances). Find the distance from the point $S(1, 0, 0)$ to the plane $x + 2y + 6z = 10$.