

MA 2733

Worksheet 5 – September 20, 2013

Name _____

1. Find a unit normal vector (that is, a normal vector that is also a unit vector) to the plane containing the points $(2, 1, 1)$, $(1, 1, 1)$, and $(1, 3, 1)$.

2. How can you tell if a plane is parallel to the plane $3x - y + z = 1$?

3. Show that if $\vec{v} + \vec{u} + \vec{w} = \vec{0}$, then $\vec{v} \times \vec{u} = \vec{u} \times \vec{w}$.

4. For each of the following sets of points, determine whether the points lie all on a line, all on a plane, or neither:

(a) $(0, 0, 0)$, $(1, 2, 3)$, $(3, 2, 1)$, $(1, 1, 1)$

(b) $(1, 1, 1)$, $(2, 1, 1)$, $(3, 1, 1)$, $(4, 1, 1)$

(c) $(0, 0, 0)$, $(1, 2, 3)$, $(3, 2, 2)$, $(1, 1, 1)$

(d) $(1, 0, 1)$, $(2, 2, 4)$, $(4, 2, 2)$, $(2, 1, 2)$