MAT 211: Linear Algebra
Problem Set 2

Stony Brook University Spring 2019
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Problem 1. (2+2+2 points)

1) Determine if the vectors $u = [3, 4, -1]$ and $v = [-4, 3, 0]$ are parallel, perpendicular, or neither.

2) Determine if the lines
$$x + 2y = 3 \quad \text{and} \quad 3x - y = 2$$
are parallel, perpendicular, or neither.
(*Hint*: look at the normal vectors.)

3) Determine if the line
$$\begin{cases} x = 1 + 2t \\ y = -1 + 3t \\ z = -5t \end{cases}$$
and the plane
$$x + y + z = 7$$
are parallel, perpendicular, or neither.

Problem 2. (*Bonus problem*, 2+2 points.) Give the parametric and general forms of the equation of the plane passing through $A = (3, 0, 0)$, $B = (0, 3, 0)$, and $C = (0, 0, 3)$.

Due Date: Thursday February 21