**Math 1553 Worksheet: More lines, planes, §1.1, and §1.2, Spring 2018**

**1.** Find all values of $h$ so that the lines $x + hy = -5$ and $2x - 8y = 6$ do *not* intersect.

**2.** **a)** Which of the following matrices are in row echelon form? Which are in reduced row echelon form?

**b)** Which entries are the pivots? Which are the pivot columns?

$$\begin{pmatrix} 1 & 0 & 1 & | & 0 \\ 0 & 1 & -3 & | & 0 \\ 0 & 0 & 0 & | & 1 \end{pmatrix} \qquad \begin{pmatrix} 1 & 4 & 0 & 1 \\ 0 & 0 & 1 & 2 \\ 0 & 0 & 0 & 0 \end{pmatrix}$$

**3.** Suppose that each augmented matrix below represents a linear system in the variables $x$, $y$, and $z$ (with the last column being after the $=$ sign). Which of the systems are consistent? Which have a *unique* solution?

(a) $\left(\begin{array}{ccc|c} 1 & 3 & 5 & 7 \\ 3 & 5 & 7 & 9 \\ 5 & 7 & 9 & 1 \end{array}\right)$
(b) $\left(\begin{array}{ccc|c} 3 & -4 & 2 & 0 \\ -8 & 12 & -4 & 0 \\ -6 & 8 & -1 & 0 \end{array}\right)$