MATH230 Week 8 Worksheet - Systems of Linear Equations

Review of last week:

1: According to U.S. roadside surveys, only 3% of drivers at any given time on the road are drunk. Using this observation and the image below, calculate how much more likely you are to cause a fatal car crash if you are drunk vs if you are sober. That is, if x, y are the crash probabilities for being drunk, sober respectively, compute the ratio x/y.

This weeks material:

2: Solve the system {2x + y - 2z = 4, x + 3y - z = -3, 3x + 4y - z = 7}

3: Determine the values of k such that the system {x+3y+z = 8, 3x+2y-2z = 5, 4x-3y+kz = 0} has a unique solution

4: Mark the following true or false:

(a): An equivalent system of linear equations can be obtained from a system of equations by replacing one of its equations by any constant multiple of itself

(b): If the augmented matrix corresponding to a system of three linear equations in three variables has a row of the form [0 0 0 | a], where a is a nonzero number, then the system has no solution.

(c): If a system of 3 linear equations in 2 variables has a unique solution, then 2 of the equations represent the same line

(d): If a system of 3 equations in 3 variables has no solution, then 2 of the planes are parallel