MATH 1553
QUIZ #1: §2.1

Name		Section	

1. [3 points] Draw a picture of the line in $\mathbf{R}^2$ defined by the equation $2x - y = 1$.
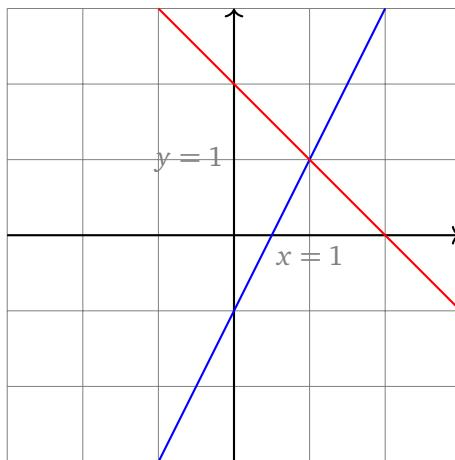
Solution.

The answer is in blue above.

2. [4 points] Write a second equation (in two variables) so that the following system becomes *inconsistent*:

$$\begin{cases} 2x - y = 1 \\ \end{cases}$$

Solution.

We just have to write an equation for a line parallel to the one in the first problem. One such is:

$$\begin{aligned} 2x - y &= 1 \\ 2x - y &= -1. \end{aligned}$$

3. [3 points] Find all intersection points of the lines defined by these equations:

$$\begin{aligned} 2x - y &= 1 \\ x + y &= 2. \end{aligned}$$

Show your work.

Solution.

Adding the equations together gives $3x = 3$, or $x = 1$. Substituting into $x + y = 2$ gives $y = 1$. Hence the only intersection point is $(1, 1)$.

Alternatively, you can draw the line $x + y = 2$ on the graph above (in red), and read off the intersection point at $(1, 1)$.