

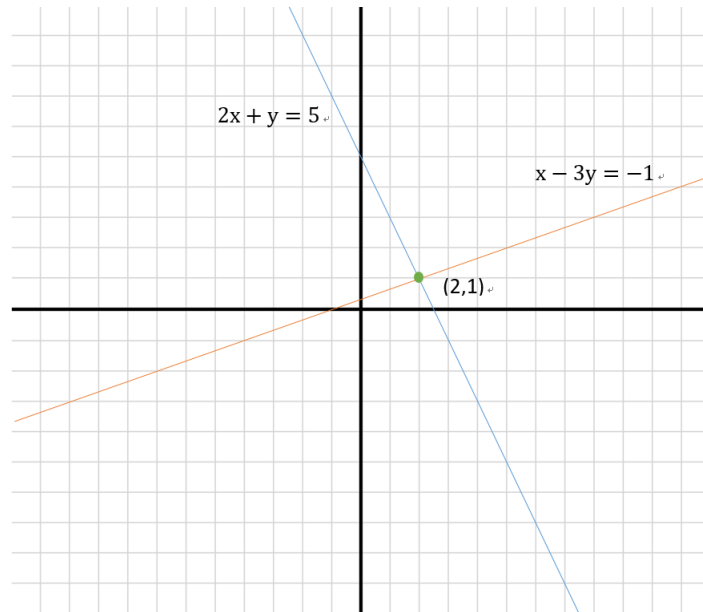
# 2018 Fall EECS205003 Linear Algebra - Quiz 1 (solution)

Name:

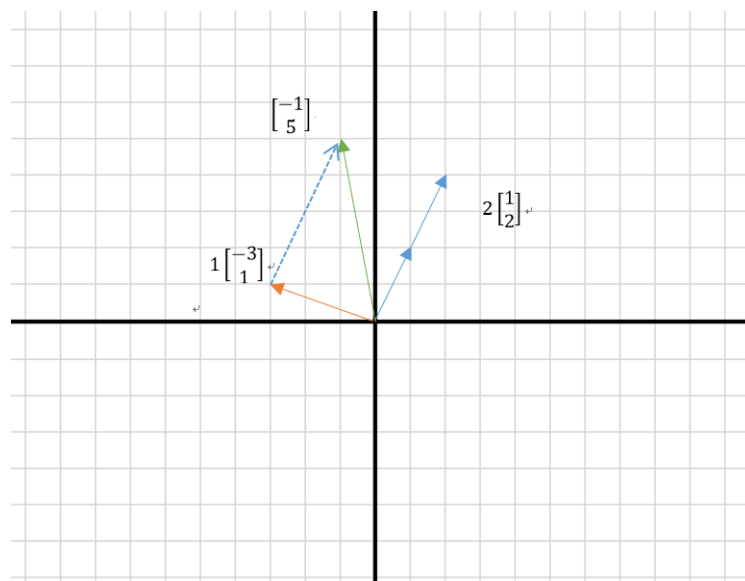
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1. Draw and write down the row picture and column picture for the equations  $x - 3y = -1$ ,  $2x + y = 5$ , and give a reason why sometimes we prefer to use column picture than row picture.

**Ans:**



The row picture has two lines meeting at the solution  $(2, 1)$ .



The column picture will have  $2 \begin{bmatrix} 1 \\ 2 \end{bmatrix} + 1 \begin{bmatrix} -3 \\ 1 \end{bmatrix} = 4(\text{column1}) + 2(\text{column2}) = \begin{bmatrix} -1 \\ 5 \end{bmatrix}$

1. In high dimension, row picture is hard to visualize.

2. We can use column picture to know the linear combination of the columns can fill n-D space or not.