Ans. key

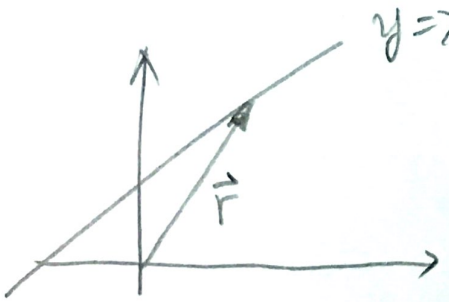
Math 2551 A1-3 Exercise 3

Section:
Name:
Student ID:

Let L be a line described by equation $y = x + 1$ in the xy coordinates. Then it can be parametrized by a vector valued function $\mathbf{r}$. Mark "True" or "False" for each of the following statments.

True (a) $\mathbf{r}(x) = x\mathbf{i} + (x+1)\mathbf{j}$, for $x \in (-\infty, \infty)$;

True (b) $\mathbf{r}(y) = (y-1)\mathbf{i} + y\mathbf{j}$, for $y \in (-\infty, \infty)$;



Let $\vec{r}$ represent a point on the line, we try to find the components of $\vec{r}$ and try to express them as functions of a single parameter. If we use x as the parameter, the x-component of $\vec{r}$ is x, and the y-comp of $\vec{r}$ is $y = x+1$, thus (a) is true; If we use y as the parameter, then the y-component of $\vec{r}$ is y and the x-component of $\vec{r}$ is $x = y-1$, thus (b) is also true.