Name:

Problem 1: *Suppose that there exists a relation between two variables u and v. The ordered pairs belonging to this relation are presented in the table below:*

u	2	5	3	-2	2
v	3	-3	1	0	6

*Circle the **one** correct statement describing this situation:*

*a) u is **not** a function of v and v is **not** a function of u*

*b) u **is** a function of v, but v is **not** a function of u*

*c) u is **not** a function of v, but v **is** a function of u*

*d) u **is** a function of v and v **is** a function of u*

You do not need to show any work if you do not want to.

Solution: We first note that u cannot be the independent variable of a function, since the two pairs $(u = 2, v = 3)$ and $(u = 2, v = 6)$ are part of the relation. Therefore the input $u = 2$ does not have a single, well-defined output. Therefore, v is **not** a function of u.
We now consider v as the possible independent variable. We note that each value of v given is different. Therefore it must be the case that each input v corresponds to a single, well-defined output u. (Since each value of v appears only once, it can only be assigned one output.) Therefore, u **is** a function of v.
The answer is b).