

**Math 245, February 22, Quick quiz**

Work in pairs or groups.

Indicate which of the following statements are true and which are false. Justify your answers as best you can.

1.  $(\forall x \in \mathbb{Z}^+)(\exists y \in \mathbb{Z}^+)[x = y + 1]$ .
2.  $(\forall x \in \mathbb{Z})(\exists y \in \mathbb{Z})[x = y + 1]$ .
3.  $(\exists x \in \mathbb{R})(\forall y \in \mathbb{R})[x = y + 1]$ .
4.  $(\forall x \in \mathbb{R}^+)(\exists y \in \mathbb{R}^+)[xy = 1]$ .
5.  $(\exists u \in \mathbb{R}^+)(\forall v \in \mathbb{R}^+)[uv < v]$ .
6.  $(\forall v \in \mathbb{R}^+)(\exists u \in \mathbb{R}^+)[uv < v]$ .