# Exercise on reading and writing proofs

A student wrote the following.

**Theorem 1.** *If $x < y$, then $x^2 < y^2$.*

*Proof.* Multiplying by $x$, $x < y \Rightarrow x \cdot x < y \cdot x$. Multiplying by $y$, $x < y \Rightarrow x \cdot y < y \cdot y$. But by commutativity of multiplication, $y \cdot x = x \cdot y$. By transitivity of $<$, $x \cdot x < y \cdot y$. QED $\square$

Comment on this student's work.

1. Is it correct?

2. Is it clearly written with good style?

3. How would you improve it?