

MATH 1200 - PRACTICE ASSIGNMENT

YOUR NAME

Solution for Question 1.

Conjecture 1. *For any numbers that sum to one, we claim that squaring the larger and adding the smaller is the same as squaring the smaller and adding the larger.*

Since $x + y = 1$, $x = 1 - y$ and $y = 1 - x$.

The meaning of symbols x and y is not clear. Please explicitly define them using a complete sentence. For example, you can say, "Let x be a number."

The relation between x and y is not clear. Is x the larger one or is x the smaller one?

$$x^2 + y = y^2 + x$$

$$x^2 - x = y^2 - y$$

$$x^2 - x = (1 - x)^2 - (1 - x)$$

$$x^2 - x = 1 - 2x + x^2 - 1 + x$$

$$x^2 - x = x^2 - x$$

How are these equations related? Please explicitly indicate the flow of logical deduction using appropriate symbols.

This is borderline circular logic -- you assumed what you want to show is true. To avoid this, start with what you know (the hypothesis) and deduce the desired equality with a clear indication of logical flow.

What is the purpose of the computation on the left? Please explicitly state what you are trying to show.

How are $x^2 + y$ and $y^2 + x$ related to the quantities in the conjecture?

□

What is the conclusion of your proof?

Date: January 8, 2023.