

## ## Best Practices in Writing Proofs ##

Indicate when the proof starts and ends.

Begin with Proof: and end with ■

Write proofs in complete sentences

Give the reader a roadmap of what has been shown, what is assumed, and where the proof is going.

- Always state what facts are assumed at beginning.
- If proof is long, indicate what has been proven and what has yet to be proven.

ex: "we have shown that  $n$  is an integer. Now we must establish that  $n$  is a composite."

Introduce each variable when the variable is introduced for the first time.

A block of equations should be introduced with English text and each step that does not follow from algebra should be justified.

ex: "Plugging in  $n = k+1$  into  $n^2$ :

$$n^2 = (k+1)^2$$

$$= k^2 + 2k + 1$$

$$\leq k^2 + 2k + 1 + m, \quad \text{because } m \geq 0$$