

Contrapositive Proof ~ Palace

Introduction page

Promotional intro sentences

S: The palace is a national heritage that used to be the home of the King. You plan on trying a little experiment in the throne room...

M: Contrapositive proofs rely on the logical equivalence between an implication and its contrapositive. We will study and use this property in depth here.

General Notes

Duration	Difficulty	Textbook reference
3/5	3/5	(1) Large parts of section 5.1

Objectives Prove statements by contrapositive proof.
 Rewrite a contrapositive proof using direct proof and vice versa.
 Compare the values of contrapositive proof and direct proof.
 Explain, apply and adapt the concept of contrapositive proof.

Storyline

Among all the luxurious rooms of the palace, the most sumptuous is the throne room. In the middle is the throne itself. You think of the following implication: if I am the King, then I can sit in the throne... How about verifying this? As other tourists look around, you suddenly step forward and sit on the throne. Immediately, alarms go off and two guards approach you. You realize that "*if I can't sit on the throne, then I am not the King*".

Location

Go to Mr. Tebti's room (5th floor of the G-building) and sit on the "throne" in his room for this section (you'll know the throne when you see it...).

Checklist

Complete all of the following before moving on. More importantly, make sure that you understand the concepts introduced in this location.

When a title starts with an *asterisk, it means you can find the corresponding page in the material handed out.

<input type="checkbox"/>	<i>*Pre-assessment:</i> this introduction work requires you to remember material from unit 2 in preparation for this section.
<input type="checkbox"/>	<i>*Written notes:</i> The notes are based on the idea of exposing similarities and differences between direct proof and contrapositive proof.
<input type="checkbox"/>	<i>*Worksheet:</i> A few exercises to practice what you learned in the notes.
<input type="checkbox"/>	<i>*Unjumble Activity:</i> Complete the activity which requires you to unjumble two proofs. Take a picture of your result to show me.
<input type="checkbox"/>	<i>Activity 2:</i> Invent a theorem (mathematical or “life-like”), then justify it with a contrapositive proof.
<input type="checkbox"/>	<i>*Logo Design Assignment:</i> This assignment of design and composition is repeated in other sections. You will need to expand and harmonize it over time until you reach a final product near the end of the unit, which means now if you’ve been to the Temple and Park already!
<input type="checkbox"/>	<i>Show me:</i> come to me when you completed all the work and be ready to answer some questions.

Conclusion

After an hour in the manager’s office, he finally lets you go. You won’t be allowed to visit the rest of the palace. And even more sadly, you now understand you are not the King. But life goes on and many other sites await you. Let’s stay out of trouble from now on.