



0 / 5  
points

15. A major focus of this course is learning how to assess mathematical reasoning. How good you are at doing that lies on a sliding scale. Your task is to evaluate this purported proof according to the [course rubric](#).

PS2\_Q15.pdf

Enter your evaluation (which should be a whole number between 0 and 24, inclusive) in the box. An answer within 4 points of the instructor's evaluation counts as correct. [5 points]

**You should read the website section "Using the evaluation rubric" (and watch the associated short explanatory video) before attempting this question. There will be many more proof evaluation questions as the course progresses.**

NOTE: The scoring system for proof evaluation questions is somewhat arbitrary, due to limitations of the platform. But the goal is to provide opportunities for you to reflect on what makes an argument a good proof, and you are allowed to repeat the Problem Sets as many times as it takes to be able to progress. Your "score" is simply feedback information. Moreover, the "passing grade" for Problem Sets is a low 35%.

10

**Incorrect Response**

Too low. The proof of the left-to-right implication is correct and well laid out, so you should end up giving at least 12 out of a possible 24. The author is wrong to assume the other implication is valid (in fact the two are not equivalent), but the logical structure and clarity is good, so 18 would be a fair grade. WATCH THE TUTORIAL VIDEO.

QUESTION 15

HERE IS WHAT THE INDIVIDUAL SUBMITTED:

**Claim:** For any two propositions  $P, Q$ ,  $\neg P \wedge \neg Q$  is equivalent to  $\neg[P \wedge Q]$ .

*Proof:* Suppose that  $\neg P \wedge \neg Q$  is true. Then both  $\neg P$  and  $\neg Q$  are true.

So  $P$  and  $Q$  are both false. Thus  $P \wedge Q$  is false. Hence  $\neg[P \wedge Q]$  is true.

This argument clearly works the other way. So we have implication in both directions, which proves the claim.