The following contingency table shows the result of a crosstabulation of type of student (A = American Student and I = International Student) by major (S = Science and S' = non-Science major). The purpose of the study is to see whether foreign students are more likely to major in the sciences than U.S. students.

<table>
<thead>
<tr>
<th></th>
<th>American Student (A)</th>
<th>International Student (I)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Science Major (S)</td>
<td>550</td>
<td>450</td>
</tr>
<tr>
<td>Non-Science Major (S')</td>
<td>4,450</td>
<td>550</td>
</tr>
</tbody>
</table>

1. \( P(A \text{ and } S) = \) 
2. \( P(S|A) = \) 
3. \( P(S \text{ or } A) = \) 
4. \( P(S) = \) 
5. \( P(A|S) = \) 
6. \( P(S'|I) = \) 

6. Are type of student and major independent? Explain.

________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________