4.14 The distribution of blood types in America and China is as follows:

<table>
<thead>
<tr>
<th>Blood type</th>
<th>O</th>
<th>A</th>
<th>B</th>
<th>AB</th>
</tr>
</thead>
<tbody>
<tr>
<td>Probability in America</td>
<td>.45</td>
<td>.40</td>
<td>.11</td>
<td>.04</td>
</tr>
<tr>
<td>Probability in China</td>
<td>.35</td>
<td>.27</td>
<td>.26</td>
<td>.12</td>
</tr>
</tbody>
</table>

Choose an American and a Chinese at random, independently of each other. What is the probability that both have Type O blood? What is the probability that both have the same blood type?
Answer to 4.14 Both Type O: .1575. Both same blood type: .1414.
4.28 People with Type O-negative blood are universal donors. That is, any patient can receive a transfusion of O-negative blood. Only 7% of the American population have O-negative blood. If 10 people appear at random to give blood, what is the probability that at least 1 of them is a universal donor?
Answer to 4.28 .516
4.27 The personal identification numbers (PINs) for automatic
teller machines usually consist of four digits. You notice that most
of your PINs have at least one 0, and you wonder if the issuers use
lots of 0s to make the numbers easy to remember. Suppose that
PINs are assigned at random, so that all four-digit numbers are
equally likely.

(a) How many possible PINs are there?
(b) What is the probability that a PIN assigned at random has at
least one 0?
Answer to 4.27

(a) 10000
(b) .3439