Consider a pair of identical-looking dice. One of the dice is ordinary (six equally-likely faces, numbered 1,2,3,4,5,6), but the other die ("loaded") has its 1 replaced by a 6, so it has six equally-likely faces, numbered 6,2,3,4,5,6). One of the dice is chosen at random and tossed 5 times.

1. Find the probability that the first toss produces a 1.  
   1) ________________

2. Find the probability that the first toss produces a 6.  
   2) ________________

3. Find the probability that the second toss produces a 6.  
   3) ________________

4. Find the probability that the first two tosses produce two 6's.  
   4) ________________

5. Find the probability that the fifth toss produces a 6 if the first toss produced a 6.  
   5) ________________

6. Find the probability that the first toss produced a 6 if the fifth toss produced a 6.  
   6) ________________

7. Find the probability that the sum of the first two tosses is 8.  
   7) ________________

8. If the loaded die was chosen, find the probability that it produced two or less 6's among the five tosses.  
   8) ________________