

Chapter 13

3. Option (ii) is better, because there are a lot more ways to win.
Clubs, diamonds, hearts, spades
Hearts, diamonds, clubs, spades.
Etc...
6. (a) True. Every card will be equal likely.
(b) True. See example 2 on p. 226
(c) False. The two events are dependent. See example 4 on p. 229. The chance is $1/52 \times 1/51$, not $1/52 \times 1/52$
8. (a) On one roll, the chance of getting 3 or more spots is $4/6 \approx 0.67$; the chance of getting 3 or more spots on 4 rolls is $(0.67)^4 \approx 0.20$, or 20%
(b) None of the rolls show 3 or more spots if all show 2 or fewer, and the chance is $(2/6)^4 \approx 0.012$, or 1.2%
(c) $100\% - 20\% = 80\%$
11. Yes, the tickets are 1 1, 1 2, 1 2, 1 3 3 1, 3 2, 3 2, 3 3

Chapter 14

3. (a) False. These events aren't mutually exclusive, so you can't add the chances. (to find the chance, read section 14.4)
(b) False. Same reason.
7. This is like Chevalier de Mere: the chance is $1 - (3/5)^4 \approx 87\%$
11. (a) $13/52 \times 12/51 \times 11/50 \approx 1\%$
(b) $39/52 \times 38/51 \times 37/50 \approx 41\%$
(c) The chance of getting all diamonds is 1%, see (a). The chance of not getting all diamonds is 99%
12. Both statements are true. Getting ten heads in a row is very unlikely --- before you start tossing. If you get nine heads in a row, however, the chance is 50-50 to get a tenth head. (It is the multiplication of all those 50-50 chances that makes ten heads in a row so unlikely.)