67

a) It is wrong to say that there is a 130% chance of raining over the weekend because raining on Saturday and raining on Sunday are independent events but not mutually exclusive. Thus, P(A AND B) should be P(A)*P(B) instead of adding them together, which is 0.42, or 42%.
b) First, the two probabilities should not be equal to each other because a successful hit doesn't mean it would be a home run. There are other dependent factors contributing to a home run, such as the angle and the power of the hit, and not every hit can be perfect. Also, the probability of getting a home run cannot be greater than the probability of getting a successful hit since the number of home runs is included within the probability of getting successful hits, which means it would always be smaller than the probability of getting a successful hit.

82

a) The sample space is 38
b) P(red) = 18/38 = 0.47 or 47%
c) P(-1st 12-) = 12/38 = 0.32 or 32%
d) P(even) = 12/38 = 0.47 or 47%
e) No in this case, 0 and 00 are neither odd or even. Thus, there are more than 2 variables in the sample size.
f) Two mutually exclusive events: an even number that is less than one, and getting a red 10
g) Events even and 1st dozen is independent, one's result doesn't affect the result of another (No condition)

84

a) 18/38 = 0.47
b) 12/38 = 0.32
c) 18/38 = 0.47
d) 18/38 = 0.47
e) 3/38*12/13 + 2/38*1/13 = 0.08
f) 36/38 = 0.95

85

a) The sample space is 8
b) P(G) = ⅝ = 0.625
c) P(G/E) = ⅔
d) P(G AND E) = 2/8 = ¼
e) P(G OR E) = 6/8 = 0.75
f) No they are not, because P(G AND E) = 2/8 >0

86

a) The sample space is 36

b) P(A) = 2/6 * 3/6 = 0.167
c) P(B) = 21/6^2 = 0.58
d) P(A/B) means given the outcome of B, what is the probability that A occurs. P(A/B) = 3/21 = 1/7
e) P(A/B) is not a mutually exclusive event because P (A AND B) is not 0, but 3/36, which is 0.0833
f) Yes, P(A AND B) = P(B)P(A/B) = 0.58 * 1/7 = 0.0833