2) a)

Solution:

Suppose the probability that East1 defeats East8 at home (8 @ 1) is p\_H, and the probability that East1 defeats East8 on the road (1 @ 8) is p\_A.

Suppose w(n) is the probability that East1 wins the game in n games, l(n) is the probability that East1 loses in n games, and f(n) is the probability the series finished in n games. So f(n) = w(n) + l(n)

w4 = p\_H\*\*2 \* p\_A\*\*2

w5 = (2\*p\_H\*(1-p\_H)\*p\_A\*\*2+2\*p\_H\*\*2\*p\_A\*(1-p\_A))\*p\_H

w6 = (3\*p\_H\*(1-p\_H)\*\*2\*p\_A\*\*2+p\_H\*\*3\*(1-p\_A)\*\*2+3\*2\*p\_H\*\*2\*(1-p\_H)\*p\_A\*(1-p\_A))\*p\_A

w7 = ((1-p\_H)\*\*3\*p\_A\*\*3

+ p\_H\*\*3\*(1-p\_A)\*\*3

+ 9\*p\_H\*\*2\*(1-p\_H)\*p\_A\*(1-p\_A)\*\*2

+ 9\*p\_H\*(1-p\_H)\*\*2\*p\_A\*\*2\*(1-p\_A)) \* p\_H

l4 = (1-p\_H)\*\*2 \* (1-p\_A)\*\*2

l5 = (2\*(1-p\_H)\*p\_H\*(1-p\_A)\*\*2+2\*(1-p\_H)\*\*2\*(1-p\_A)\*p\_A)\*(1-p\_H)

l6 = (3\*(1-p\_H)\*p\_H\*\*2\*(1-p\_A)\*\*2+(1-p\_H)\*\*3\*p\_A\*\*2+3\*2\*(1-p\_H)\*\*2\*p\_H\*(1-p\_A)\*p\_A)\*(1-p\_A)

l7 = (p\_H\*\*3\*(1-p\_A)\*\*3

+ (1-p\_H)\*\*3\*p\_A\*\*3

+ 9\*(1-p\_H)\*\*2\*p\_H\*(1-p\_A)\*p\_A\*\*2

+ 9\*(1-p\_H)\*p\_H\*\*2\*(1-p\_A)\*\*2\*p\_A) \* (1-p\_H)

F4 = w4 + l4

F5 = w5 + l5

F6 = w6 + l6

F7 = w7 + l7