

1a)

PP PS PR

SP SS SR

RP RS RR

b)  $1/3$

c)  $1/3$

d)  $1/3$

e)  $1/9$

f)  $1/27$

g)  $1/81$

h)  $1/3 + 1/9 + 1/27 + 1/81 + \dots$

i) first term =  $1/3$ , ratio =  $1/3$

j) sum =  $1/2$ . Yes, this makes sense. Each player has a 50% chance of winning.

2)

PP PS PR PL PSp

SP SS SR SL SSp

RP RS RR RL RSp

LP LS LR LL LSp

SpP SpS SpR SpL SpSp

b)  $1/5$

c)  $2/5$

d)  $2/5$

e)  $2/25$

f)  $2/125$

g)  $2/625$

h)  $2/5 + 2/25 + 2/125 + 2/625 + \dots$

i) first term =  $2/5$ , ratio =  $1/5$

j) sum =  $1/2$ . Yes, this makes sense. Each player has a 50% chance of winning.

3a) 74.6%

b) 97.6%

c) It's better when more people use drugs.