3/10 (moving to door 0 lose

1/3 1/3 1/3

First Game:

1 2 3

1 2 3

0 1/2 1/2

(1/3)

P(1win):

1/3

P(1) = (1/3)

P(1) 1=T or

P(1): (1/3)·0 + (1/3)·1 + (1/3)·1 = 2/3

P(2): (1/3)·(1/2) + (1/3)·0 + (1/3)·0 = 1/6

P(3): (1/3)·(1/2) + (1/3)·0 + (1/3)·0 = 1/6

P(1): (2/3)·0 + (1/6)·1 + (1/6)·1 = 2/6 = 1/3

P(2): (2/3)·(1/2) + (1/6)·0 + (1/6)·0 = 1/3

P(3): (2/3)·(1/2) + (1/6)·0 + (1/6)·0 = 1/3

P(2 wins + 3 wins) = 1 − P(1 win)

1 − (1/3)·(2/3)·(1/3)

2/27

1 − P(lose) = P(win)

1 − (1/3)

(1/3) + (2/3)·(2/3) +

(1/3)·

$1 - P(\cancel{\text{no wins}}^{0} + 1 \text{ win}) =$

$2/3$

$(2/3)\cdot(1/3)$

$LLL = (2/3)\cdot(2/3)\cdot 0 = 0$

$LWL = (2/3)\cdot(2/3)\cdot 1 = 4/9$

$WLL = (1/3)\cdot 1 \cdot 0 = 0$ $\Big\} = 6/9$

$LLW = (2/3)\cdot(1/3)\cdot 1 = 2/9$

$1/2(500)$ $1/2(-500)$ $1(+500)$

1

$(1/3)\cdot +500 + (2/3)\cdot(-500)$ $+0$

$P(WWW) = 1/3 \cdot 0 \cdot 1 = 0$

$1 - 6/9 = 3/9 = 1/3$ $(-500/3)$

$1/6$

$2/3 \cdot 0 = 0$

$+$

$5/6 = 0$

$1/6 = +500$

$5/6 \cdot 0 = 0$

$+$

$1/6 \cdot +500 = 83.3$

$P(WLW) = 1/3 \cdot 1 \cdot 1 = \boxed{1/3}$

$P(LWW) = (2/3)\cdot(2/3)\cdot 0 = 0$

$1/3$ $1/3$ $1/3$

1 2 3

1 2 3

$(1/6)(+1000)$