CS 427

Homework 5

Baker, Alex

# Problem 1

10

31

33

35

18

24

10

1. (35+10)/250 = 45/250 = 18%
2. (10+33+24)/250 = 67/250 = 26.8%
3. 18/250 = 7.2%

# Problem 2

ex(X) = E[X]\*P(X) – 4\*(1-P(X))

E[X] = 1\*(1/6) + 2\*(1/6) + 3\*(1/6) + 4\*(1/6) + 5\*(1/6) + 6\*(1/6) = 3.5

ex(X) = 3.5\*(1/6) – 4(5/6) = -2.75

This is not a reasonable game since you will loose on average $2.75 per turn.

# Problem 3

E – Tested positive

F – Has the disease

P(F|E) = (P(E|F) \* P(F)) / P(E)

P(E|F) = 1-P(E|not F) = 1 – 0.03 = 0.97

P(F) = 0.10

P(E) = 0.9

P(F|E) = (0.97 \* 0.1) / 0.9 = 10.7%

# Problem 4

E – good driver

F – had an accident

P(E|F) = (P(F|E) \* P(E)) / P(F)

P(F|E) = 0.05

P(E) = 0.25

P(F) = 0.05 + 0.15 + 0.25 = 0.45

P(E|F) = (0.05 \* 0.25) / 0.45 = 2.78%