

Sam Hopkins
MCT Search HW
Cs 470

1. a) 1 2 3 4 5 6 7 $E=0.01$ exploit = .99
 .0014 .0014 .0014 .0014 .0014 .9914 .0014 explore = .01

1 = $119/476 = .25$ 3 = $158/710 = .22$ 5 = $79/237 = .33$ 7 = $117/351 = .33$
 2 = $127/640 = .2$ 4 = $79/79 = 1$ 6 = $123/1737 = .11$

b) 1 2 3 4 5 6 7 $\frac{R_i}{n_i} + (1) \sqrt{\frac{\ln(N)}{n_i}}$ $N = 923$
 4.239 5.195 5.208 1.294 3.294 4.168 3.242 $\ln(N) = 6.8276$

c) 6

d) ~~if the C value changes to 100, then the arm would be pulled would be arm 5~~ if the C value changes to 100, then the arm would be pulled would be arm 5

2. a) $B = \frac{285}{377} + 10 \sqrt{\frac{\ln(640)}{377}} = 2.066$ or $C = \frac{244}{237} + 10 \sqrt{\frac{\ln(640)}{237}} = 2.71$

$F = \frac{41}{59} + 10 \sqrt{\frac{\ln(233)}{59}} = 3.7345$ $G = \frac{203}{174} + 10 \sqrt{\frac{\ln(233)}{174}} = 2.936$

$J = \frac{23}{39} + 10 \sqrt{\frac{\ln(59)}{39}} = 3.8232$ $K = \frac{18}{20} + 10 \sqrt{\frac{\ln(59)}{20}} = 5.4153$ K is expanded

b) r=29 n=1 K: n=21 r=47 F: n=60 r=70 C: n=234 r=273 A: n=611 r=558

c) yes if $C=.1$, then: $G = 1.184$ we would pick L

$L = \frac{89}{75} + .1 \sqrt{\frac{\ln(174)}{75}} = 1.1945$ $M = \frac{115}{99} + .1 \sqrt{\frac{\ln(174)}{99}} = 1.18444$

~~1.0638~~ $C = 1.0638$

d) C