

MATH336 - HW #10

1.

$$\text{ExactPD}(20, 40, \frac{19}{40}) \begin{cases} P(\text{win}) \approx 0.119 \\ \text{expected duration} \approx 304.77 \text{ rounds} \end{cases}$$

$$\text{EstPD}(20, 40, \frac{19}{40}, 100) : P(\text{win}) \approx 0.110, \text{ expected duration} \approx 292.06 \text{ rounds}$$

$$\text{EstPD}(20, 40, \frac{19}{40}, 1000) : P(\text{win}) \approx 0.131, \text{ expected duration} \approx 308.30 \text{ rounds}$$

$$\text{EstPD}(20, 40, \frac{19}{40}, 5000) : P(\text{win}) \approx 0.123, \text{ expected duration} \approx 307.17 \text{ rounds}$$

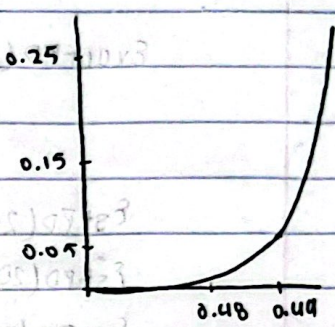
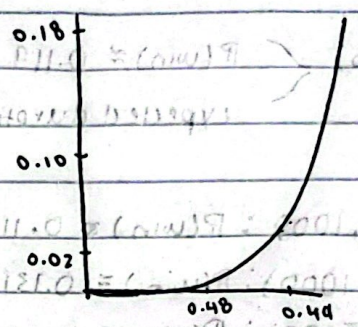
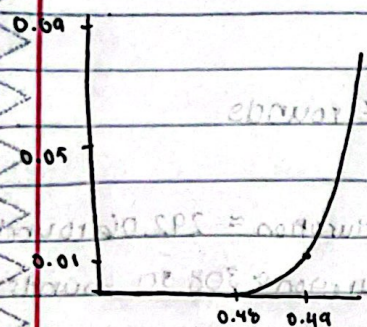
$K=5000$ gives the best estimate; increasing the number of simulations run reduces the effects of random error, so it's a better representation of the data points.

01/01/14 - JEEB/TAM

$n=10$

$n=20$

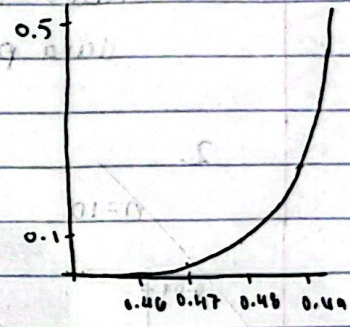
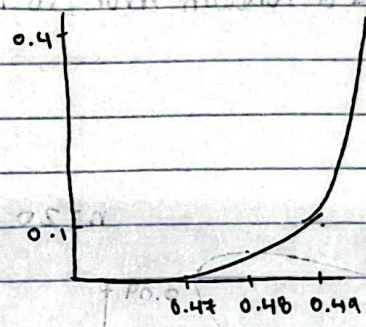
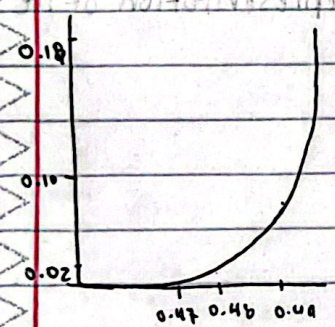
$n=30$



$n=40$

$n=50$

$n=60$



$n=70$

$n=80$

$n=90$

