Cole Hurst

Homework 2
Problem 1

$\lambda = 20/\text{sec} = 1200/\text{min}$

a) probability 1000 requests a minute
$= 16.7/\text{sec}$ (E 92)

$\frac{\lambda^x e^{-\lambda}}{x!} = \frac{16.7^0 e^{-16.7}}{0!}$

b) $F(0) = \frac{\lambda^x e^{-\lambda}}{x!} = \frac{60^0 e^{-60}}{0!}$ 8.76×10^{-27}

20 process/sec → 60 process/3sec

c) $\frac{10^0 e^{-10}}{0!}$ ~~4.54×10^{-5}~~

d) $20/\text{sec} \times .7 = 14 \text{ processes/sec}$

2 5 requests in queue
10 msec of waiting 2. request
1/6 request 1 sec = λ
5 request waiting for service
$W = n \cdot \lambda$
$5 = .01 \cdot \lambda$
500 process/sec

10 msec → .01 sec

3a) $\lambda = 20 P/\text{sec}$
~~.35 sec~~ $.035 \times 20 = .70 =$ 70% utilization

b) 5.5 processes

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