

## Assignment 36

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First we must find  $P(1, 17, 8, 25, 3|n)$ . To do this we must find

$$P(52, 30, 68, 7) = \frac{1}{n} * \frac{1}{n} * \frac{1}{n} * \frac{1}{n} = \frac{1}{n^4}$$

therefore

$$P(1, 17, 8, 25, 3|n) = \begin{cases} \frac{1}{n^4} & n \geq 68 \\ 0 & \textit{otherwise} \end{cases}$$

Then we need to find  $P(k|1, 17, 8, 25, 3)$  by computing

$$\sum_{n=66}^{\infty} c * \frac{1}{n^4} = 1$$

$$c = \frac{1}{\sum_{n=66}^{\infty} \frac{1}{n^4}}$$

$$c = 922742$$

$$P(k|1, 17, 8, 25, 3) = c * P(1, 17, 8, 25, 3|k) =$$

$$\begin{cases} \frac{922742}{n^4} & n \geq 68 \\ 0 & \textit{otherwise} \end{cases}$$

Finally we can try to find with 95 percent certainty, what's the max number of tanks.

$$\sum_{n=66}^T \frac{922742}{n^4} = .95$$
$$T = 183$$