Baye's Rule

$$P(A|B) = \frac{P(A) \cdot P(B|A)}{P(A) \cdot P(B|A) + P(\neg A) \cdot P(B|\neg A)}$$

$$P(A|B) = \frac{P(target) \cdot P(True\ Positive)}{P(target) \cdot P(True\ Positive) + P(\neg target) \cdot P(False\ Positive)}$$

P(target)	P(not target)
True Positive	False Positive
False Negative	True Negative

$P(nottarget) = Inverse\ P(target)$

Autumn 2015

$P(A) = \frac{1}{10^6}$ Number of faults. Probability of a faulty CPU

$P(\neg A) = 1 - (\frac{1}{10^6})$

$P(B|A) = 0.99$ Having a suspicious simulation

$P(B|\neg A) = \frac{1}{3 * 10^5}$

$$P(A|B) = \frac{\frac{1}{10^6} \cdot 0.99}{\frac{1}{10^6} \cdot 0.99 + 1 - (\frac{1}{10^6}) \cdot \frac{1}{3*10^5}}$$

January 2015

$P(A) =$

$P(\neg A) =$

$P(B|A) =$

$P(B|\neg A) =$