1. Suppose that a test for opium use has a 2% false positive rate and a 5% false negative rate. That is, 2% of people who do not use opium test positive for opium, and 5% of opium users test negative for opium. Furthermore, suppose that 1% of people actually use opium. Find the probability that someone who tests negative for opium use does not use opium.

2. What is the expected number of heads that come up when a fair coin is flipped five times? To get full credit, you need to show the expected value table.

\[
p(F \mid E) = \frac{p(E \mid F)p(F)}{p(E \mid F)p(F) + p(E \mid \overline{F})p(\overline{F})}
\]