#35  \( \text{det} \ A = \text{People over 50 with arthritis} \)

\( T = \text{Test indicates that individual has arthritis} \)

\[
P(A) = 0.10 \quad \rightarrow \quad P(A') = 1 - 0.10 = 0.90
\]

\( P(T \mid A) = 0.85 \)

\( P(T \mid A') = 0.04 \)

Find \( P(A \mid T) \)

Use Baye's Theorem

\[
P(A \mid T) = \frac{P(T \mid A) P(A)}{P(T \mid A) P(A) + P(T \mid A') P(A')}
\]

\[
= \frac{(0.85)(0.10)}{(0.85)(0.10) + (0.04)(0.90)}
\]

\[
= 0.702993
\]

\[
= 0.7025 \pm 0.25 \%
\]