2.72 a. $P(A \cap M) = \frac{24}{100} = 0.24$

$P(M) = \frac{40}{100} = 0.4$

$P(A) = \frac{60}{100} = 0.6$

Since $P(A \cap M) = P(M)P(A)$

A and M are independent

b. $P(\bar{A} \cap F) = \frac{24}{100} = 0.24$

$P(\bar{A}) = \frac{40}{100} = 0.4$

$P(F) = \frac{60}{100} = 0.6$

Since $P(\bar{A} \cap F) = P(\bar{A}) \cdot P(F)$

$\bar{A}$ and F are independent.

2.80. $P(A \cap B) = P(A)$

if A and B are independent

$P(A \cap B) = P(A)P(B)$

$\Rightarrow$ $P(B)$ has to be 1

therefore, A and B are not independent unless

$B = S$