2.72 For a certain population of employees, the percentage passing or failing a job competency exam, listed according to sex, were as shown in the accompanying table. That is, of all the people taking the exam, 24% were in the male-pass category, 16% were in the male-fail category, and so forth. An employee is to be selected randomly from this population. Let A be the event that the employee scores a passing grade on the exam and let M be the event that a male is selected.

	Sex		
Outcome	Male (M)	Female (F)	*Total*
Pass (A)	24	36	60
Fail ($\overline{A}$)	16	24	40
Total	40	60	100

a Are the events A and M independent?

b Are the events $\overline{A}$ and F independent?

2.80 Suppose that $A \subset B$ and that $P(A) > 0$ and $P(B) > 0$. Are A and B independent? Prove your answer.