Are Two Events Independent?

Part 1: Determine if the events A and B are independent based on the given information:

a) $P(A) = .4, \quad P(B) = .8, \quad P(A \cap B) = .32$

b) $P(A) = \frac{1}{3} \quad P(B) = \frac{1}{5} \quad P(A \cap B) = \frac{1}{10}$

c) $P(A) = \frac{2}{3} \quad P(B) = \frac{1}{7} \quad P(A \cap B) = \frac{2}{21}$

d) $P(A) = \frac{1}{2} \quad P(A|B) = .02$

e) $P(B) = .25 \quad P(B|A) = 1/4$

f) $P(B) = .40 \quad P(B|A) = 4/5$

Examine the table below:

	Sleeps less than 8 hours	Sleeps 8 or more hours	Totals
Night shift	12	58	70
Day shift	14	16	30
Totals	26	74	100

g) Find $P(Night\ Shift) =$

h) Find $P(Sleep\ more\ than\ 8\ hours) =$

i) Find $P(Sleep\ more\ than\ 8\ hours\ AND\ Night\ Shift) =$

j) Are the events "Night Shift" and "Sleeping more than 8 hours" independent? Show your work: