9.7 : Soln: (a)

Reconstructing the table given with joint and Marginal distributions

Y (Eye color) \ X (Hair Color)	1 (Fair/red)	2 Medium	3 Dark/Black	Marginal (Y)
(Light) 1	0.2170	0.1533	0.0567	0.4269
(Dark) 2	0.1064	0.2437	0.2229	0.5731
Marginal (X)	0.3234	0.3970	0.2796	1.0000

(b) X and Y independent ?

$P(X=1, Y=1) = 0.2170$

(from the table)

$P(X=1) = 0.3230$

$P(Y=1) = 0.4269$

So

$P(X=1, Y=1) \neq P(X=1) * P(Y=1)$

So they are not independent ---