

2.

	Satisfactory	Unsatisfactory	Total
on time	0.26	0.50	0.76
late	0.15	0.9	0.24
	0.41		1

let  $\theta_1 = \text{on time}$  ,  $a_1 = \text{satisfactory}$   
 $\theta_2 = \text{late}$   $a_2 = \text{unsatisfactory}$

$$P(a_1) = 0.41 = P(a_1 \cap \theta_1) + P(a_1 \cap \theta_2)$$

$$\Rightarrow P(a_1 \cap \theta_2) = 0.41 - P(a_1 \cap \theta_1) = 0.41 - 0.26$$

$$P(a_2 \cap \theta_2) = 0.15$$

$$\bullet P(\text{late}) = 1 - P(\text{ontime}) = 1 - 0.76 = 0.24$$

$$P(\text{late}) = P(\text{satis} \cap \text{late}) + P(\text{unsatis} \cap \text{late})$$

$$\Rightarrow P(\text{unsat.} \cap \text{late}) = 0.24 - 0.15 = 0.9$$

$$\therefore \text{a) } P(\text{late} \cap \text{unsatisfactory}) = 0.9$$

$$b) P(\text{ontime} | \text{satisfactory}) = \frac{P(\text{ontime} \cap \text{satis})}{P(\text{satis})}$$

$$= \frac{0.26}{0.41} = 0.63$$