

# SL Review

## NON-CALCULATOR (page 94)

#1 There are  $99 - 9 = 90$  numbers

(a)  $5(2), 5(3), 5(4), \dots, 5(19)$  are multiples of 5  
There are  $19 - 1 = 18$  of these.  $\frac{18}{90}$

(b)  $3(4), 3(5), \dots, 3(33)$ . There are  $33 - 3 = 30$  of these

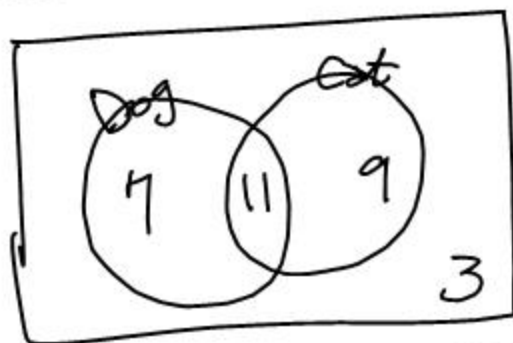
$$\frac{30}{90}$$

(c)  $51, 52, 53, \dots, 99$ . There are  $99 - 50 = 49$  of these

$$\frac{49}{90}$$

(d)  $4^2, 5^2, \dots, 9^2$ . There are  $9 - 3 = 6$  of these  $\frac{6}{90}$

#2

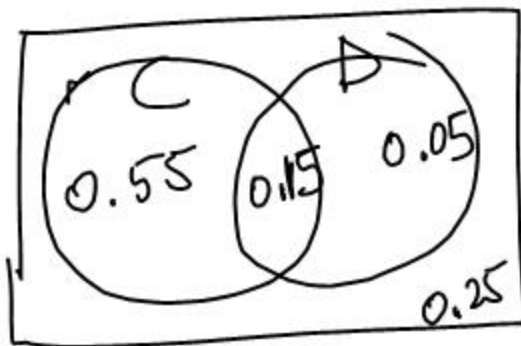


$$+ \frac{18}{38} \quad \frac{30}{27}$$

$$38 - 27 = \underline{11}$$

$$\frac{11}{30}$$

#3.



$$P(C) + P(D) = 0.9$$

$$P(C \cup D) = \frac{0.75}{0.15}$$

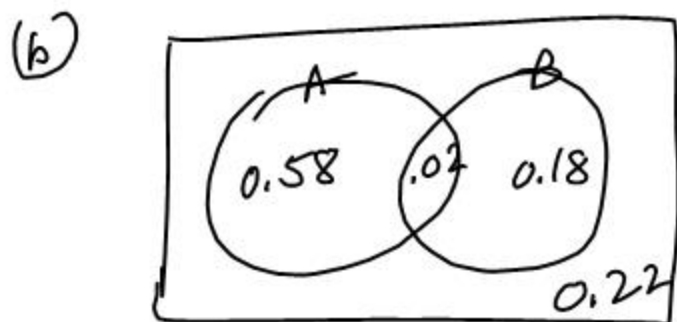
$$P(C \cap D') = 0.55$$

$$P(C) \cdot P(D) = (0.7)(0.2) = 0.14$$

$$P(C \cap D) = 0.15 \leftarrow \text{not equal}$$

#4 (a)  $P(A|B) = \frac{P(A \cap B)}{P(B)}$

o/h =  $\frac{P(A \cap B)}{0.2} \Rightarrow \underline{\underline{P(A \cap B) = 0.02}}$   
 prob. both occur



$1 - 0.58 - 0.02 - 0.18 = 0.22$

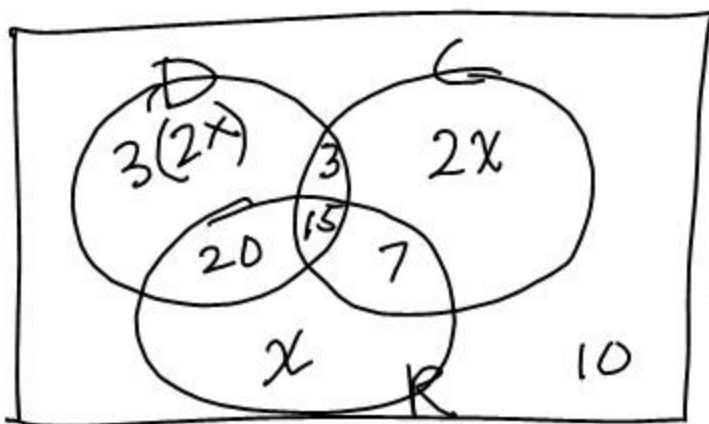
$P(A \cup B) = 0.58 + 0.02 + 0.18 = 0.78$   
prob. of at least 1

(c)  $P(A \cap B') + P(A' \cap B) = 0.58 + 0.18 = 0.76$

prob. of exactly 1 event

(d)  $P(B|A) = \frac{P(A \cap B)}{P(A)} = \frac{0.02}{0.60} = \frac{1}{30}$

#5



(a)  $3(2x) = 6x$



(c)  $6x + 2x + x + 3 + 15 + 20 + 7 + 10 = 100$

$9x = 45$

$x = 5$

# CALCULATOR REVIEW (p. 95)

$$\boxed{\#1} \text{ (a)} P(C|D) = \frac{P(C \cap D)}{P(D)}$$

$$0.6 = \frac{P(C \cap D)}{0.5} \Rightarrow P(C \cap D) = 0.30$$

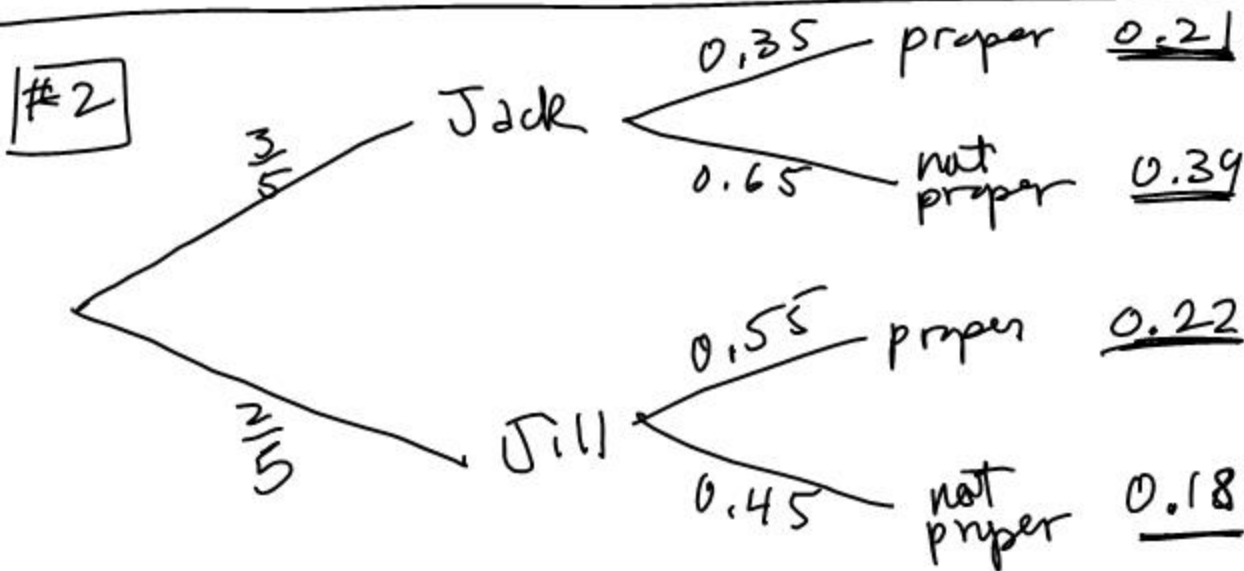
(b) NO, because  $P(C \cap D) \neq 0$

$$(c) P(C) \cdot P(D) = (0.4)(0.5) = 0.20$$

$P(C \cap D) = 0.30$  ← since these are not equal, C and D are not independent.

$$(d) P(C \cup D) = P(C) + P(D) - P(C \cap D)$$
$$= 0.4 + 0.5 - 0.30$$
$$= 0.6$$

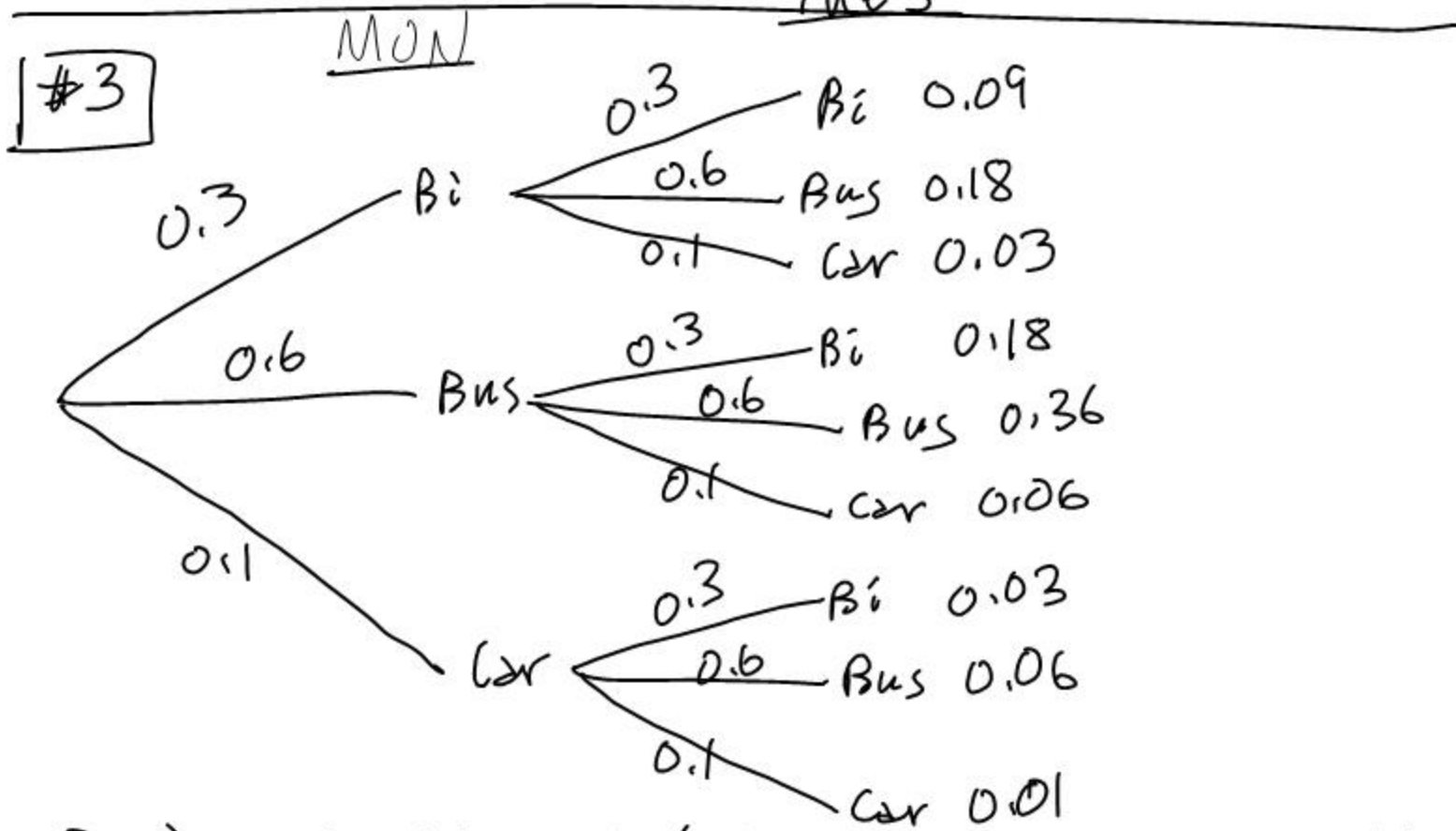
$$(e) P(D|C) = \frac{P(D \cap C)}{P(C)} = \frac{0.30}{0.40} = \frac{3}{4}$$



$$(a) P(\text{proper job}) = 0.21 + 0.22 = 0.43$$

$$(b) P(\text{Jill} | \text{not proper}) = \frac{P(\text{Jill} \cap \text{not proper})}{P(\text{not proper})}$$

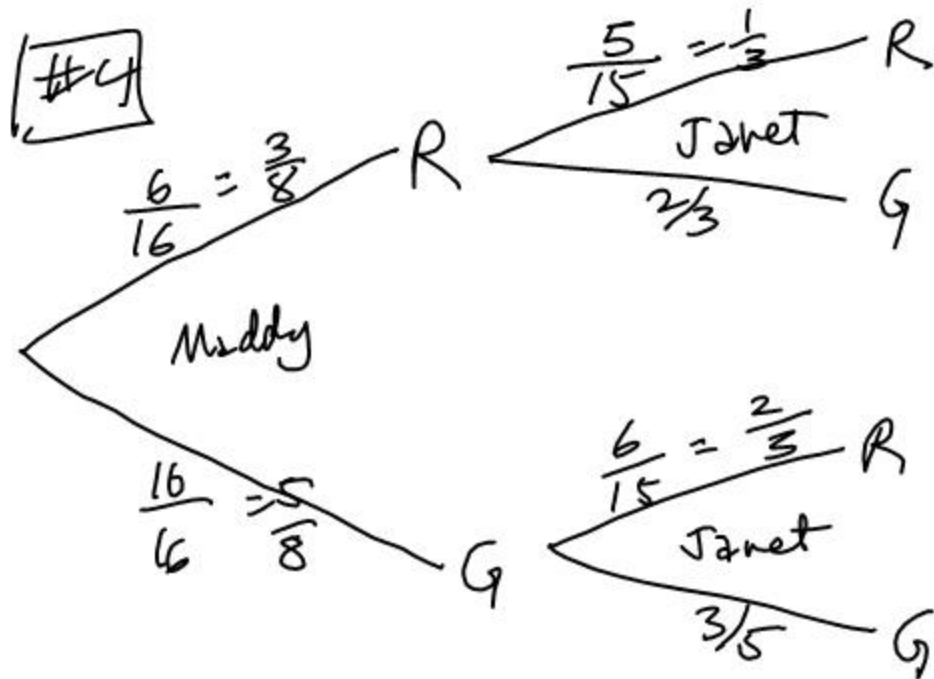
$$= \frac{0.18}{0.57} = \frac{6}{19}$$



$$(b) (i) 0.09 \quad (ii) 0.18 \quad (iii) 0.09 + 0.36 + 0.01 = 0.46$$

$$(c) (0.7)(0.7)(0.7) = 0.343$$

$$(d) \binom{3}{2} (0.1)^2 (0.6) + \binom{3}{2} (0.3)^2 (0.1) = 0.045$$

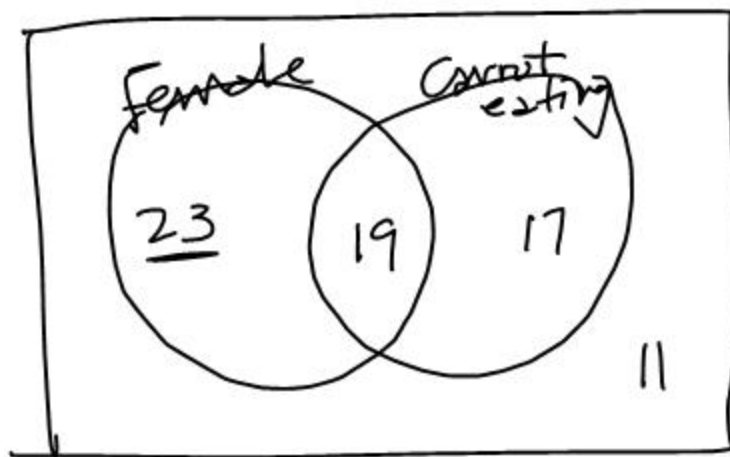


a)  $\frac{6}{16} = \frac{3}{8}$

b)  $\frac{10}{16} = \frac{5}{8}$

c)  $P(R \cap R) = \frac{5}{15} \cdot \frac{4}{14} = \frac{1}{3} \cdot \frac{2}{7} = \frac{2}{21}$

#5



$$\begin{array}{r} 34 \\ - 23 \\ \hline 11 \end{array} \leftarrow \text{males not eating}$$

$$\begin{array}{r} 42 \text{ females} \\ - 23 \text{ females not eating} \\ \hline 19 \text{ females eating current} \end{array}$$

a)  $\frac{11}{70}$  (b)  $P(F|C) = \frac{19}{19+17} = \frac{19}{36}$

$$70 - 23 - 19 - 11 = 17$$

c)  $P(F) \cdot P(C) = \frac{42}{70} \cdot \frac{36}{70} = \frac{54}{175}$   
 $P(F \cap C) = 19/70$  NOT indep.