p. 446

(71) A = light truck   B = imported vehicle

$P(A) = .69$ $B = .22$

A' = car B' = domestic vehicle

$P(A') = .31$ $P(B') = .78$

$$P(A \cap B') = .55$$

"Domestic Trucks" = .55

a) $P(A') = .31$

b) $P(A' \cap B)$ = Domestic Vehicles − Domestic Trucks

"Domestic Cars" = .78 − .55

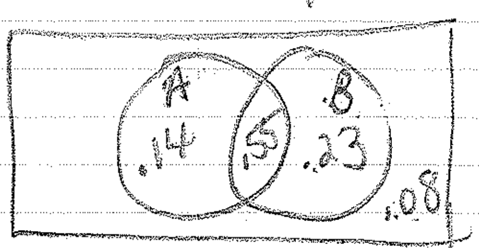
= .23

Cars − Domestic Cars = Imported Cars

.31 − .23 = $\boxed{.08}$

c) $P(A' \mid B) = \dfrac{P(A' \cap B)}{P(B)} = \dfrac{.08}{.22} = \boxed{.3636}$

OR you can make a Venn Diagram! A = light truck B = Domestic vehicle



a) $P(A') = .23 + .08 = .31$

b) $P(A' \cap B') = .08$

c) $P(A' \mid B') = \dfrac{P(B' \cap A')}{P(B')}$

$= \dfrac{.08}{.22} = .3636$

d) $P(\overset{A'}{\text{vehicle a car}} \mid \overset{B'}{\text{vehicle imported}}) \stackrel{?}{=} P(\overset{A'}{\text{vehicle a car}})$

$$\frac{P(A' \cap B')}{P(B')} \stackrel{?}{=} P(A')$$

$$\frac{.08}{.22} \stackrel{?}{=} .31$$

$$.3636 \stackrel{?}{=} .31 \qquad \text{No}$$

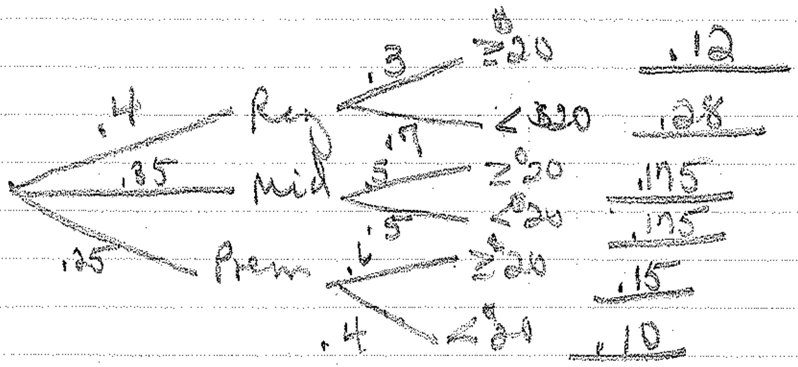
OR $P(A' \cap B) \stackrel{?}{=} P(A') \cdot P(B)$

from first part

$$.08 \stackrel{?}{=} (.31)(.22)$$

$$.08 \stackrel{?}{=} .0682 \qquad \text{No}$$

72



$P(\text{pump} \geq \$20) = .12 + .175 + .15$

$= .445$

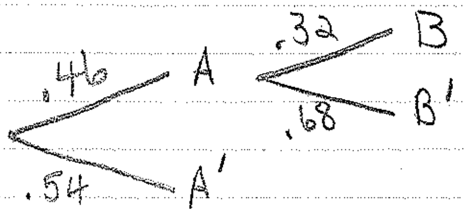
$\boxed{44.5\%}$

73 $P(\text{Pump premium} \mid \geq \$20) = \dfrac{P(\text{Prem} \cap \geq \$20)}{P(\geq \$20)} = \dfrac{.15}{.445} = .337$

$\boxed{33.7\%}$

(74) A = choose a woman B = person holds managerial position or professional

$P(A) = .46$ $P(B|A) = .32$



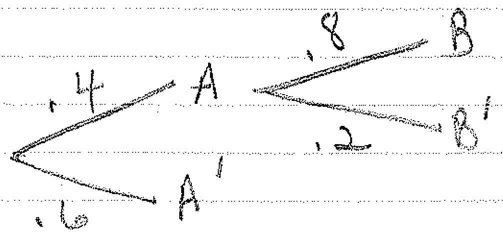
$P(A \cap B) = P(A) \cdot P(B|A)$

$= (.46)(.32) = .1472$

$\boxed{14.72\%}$

(75) A = dollar falls B = supplier demand renegotiation of contract

$P(A) = .4$ $P(B|A) = .8$



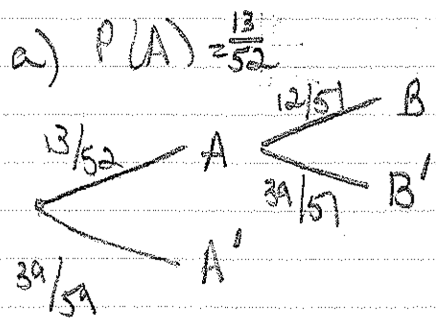
$P(A \cap B) = P(A)P(B|A)$

$= (.4)(.8) = .32$

$\boxed{32\%}$

(76) A = 1st card a spade B = second card a spade

a) $P(A) = \frac{13}{52}$ $P(B|A) = \frac{12}{51}$



b) $P(C|A \cap B) = \frac{11}{50}$

$P(D|A \cap B \cap C) = \frac{10}{49}$

$P(E|A \cap B \cap C \cap D) = \frac{9}{48}$

c) $P(\text{all 5 spades}) = \frac{13}{52} \cdot \frac{12}{51} \cdot \frac{11}{50} \cdot \frac{10}{49} \cdot \frac{9}{48} = .0004952$

d) 4 suits $\rightarrow 4(.0004952) = .00198$