Section 4.5 Review 4.126; 4.130; 4.139 c,d; 4.143 d, e and activity

126) A and B are events such that $P(A) = 0.75$ and $P(A \text{ and } B) = 0.25$. Find $P(B|A)$.

$$P(B|A) = \frac{P(A \& B)}{P(A)}$$

$$= \frac{0.25}{0.75} = \frac{1}{3}$$

$$\approx 0.333$$

130) Find $P(C_1|R_2)$ and $P(R_2|C_1)$

	C1	C2	Total
R1	3	7	10
R2	8	7	15
Total	11	14	25

$P(C_1|R_2) = \frac{8}{15}$ $\quad P(R_2|C_1) = \frac{8}{11}$

Rule:

$$P(C_1|R_2) = \frac{8/25}{15/25} = \frac{8}{15}$$

139) P(weighs under 200 lbs | rookie) = $P(W_1|Y_1)$

$$= \frac{3}{18} \approx 0.167$$

16.7% of rookies are < 200 lbs

	Years				
	Rookie Y_1	1-5 Y_2	6-10 Y_3	>10 Y_4	totals
<200 W_1	3	5	0	0	8
200-300 W_2	11	21	7	2	41
>300 W_3	4	4	5	0	13
total	18	30	12	2	62

Weight

$P(Y_1|W_1) = \frac{3}{8}$

$P(W_1 \mid Y_1) = \frac{3}{18} \approx 0.167$

16.7% of rookies are <200lbs

$P(Y_1 \mid W_1) = \frac{3}{8} = 0.375$

37.5% of players under 200 lbs are rookies

$$P(S_1 \mid E_4) = \frac{P(E_4 \& S_1)}{P(E_4)}$$

$P(S_1 \& E_4) = 0.274$

$P(E_4) = 0.391$

$$= \frac{0.274}{0.391}$$

$$\approx 0.701$$

70.1% of college grads owned a smartphone.

$P(\text{college grad} \mid \text{own smartphone})$

$$P(E_4 \mid S_1) = \frac{P(E_4 \& S_1)}{P(S_1)}$$