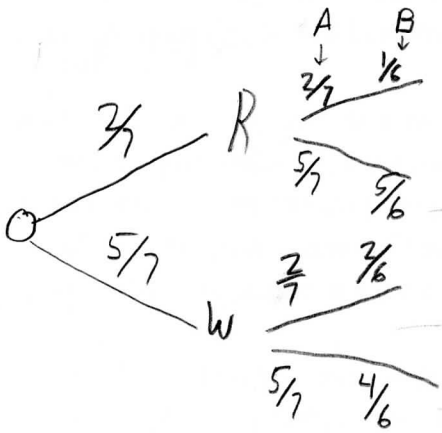
Section 8.3 45, 61, 81

45] $E = \{2, 4\}$ $F = \{1, 2, 3\}$ $E \cap F = \{2\}$

$P(E) = .1 + .3 = .4$ $P(F) = .3 + .1 + .2 = .6$ $P(E \cap F) = .1$

A) $P(F|E) = \dfrac{P(E \cap F)}{P(E)} = \dfrac{.1}{.4} = \boxed{.25}$

61]



R	$\frac{2}{7}\left(\frac{2}{7}\right) = \frac{4}{49}$	$\frac{2}{7}\left(\frac{1}{6}\right) = \frac{2}{42}$
W	$\frac{2}{7}\left(\frac{5}{7}\right) = \frac{10}{49}$	$\frac{2}{7}\left(\frac{5}{6}\right) = \frac{10}{42}$
R	$\frac{5}{7}\left(\frac{2}{7}\right) = \frac{10}{49}$	$\frac{5}{7}\left(\frac{2}{6}\right) = \frac{10}{42}$
W	$\frac{5}{7}\left(\frac{5}{7}\right) = \frac{25}{49}$	$\frac{5}{7}\left(\frac{4}{6}\right) = \frac{20}{42}$

A) Replacement B) without replacement

A) $P(\text{at least 1 red}) = \frac{4}{49} + \frac{10}{49} + \frac{10}{49} = \frac{24}{49}$ $= 1 - \frac{25}{49} = \frac{24}{49}$

B) $P(\text{at least 1 red}) = \frac{2}{42} + \frac{10}{42} + \frac{10}{42} = \frac{22}{42}$ $= 1 - \frac{20}{42} = \frac{22}{42}$

81] A)

	H	S	T
Y	.4	.2	.6
N	.15	.25	.4
T	.55	.45	1

B) $P(Y) = .6$

$P(Y|H) = \dfrac{.4}{.55} = .727$

C) $P(S) = .45$

$P(S|Y) = \dfrac{.2}{.6} = .333$