# Prob Set 7-3

1a. $\frac{12}{46} \cdot \frac{16}{46} = \frac{6}{23} \cdot \frac{8}{23} = \frac{48}{529}$

b. $\frac{12}{46} \cdot \frac{16}{45} = \frac{2\cancel{16}}{23} \cdot \frac{16}{\cancel{45}} = \frac{32}{345}$

c. $\frac{12}{46} \cdot \frac{18}{46} \cdot \frac{12}{46} = \frac{6}{23} \cdot \frac{9}{23} \cdot \frac{6}{23} = \frac{324}{12167}$

d. $\frac{12}{46} \cdot \frac{11}{45} \cdot \frac{18}{44} = \frac{6}{23} \cdot \frac{11}{\cancel{45}\,5} \cdot \frac{\cancel{9}\,1}{\cancel{22}\,2} = \frac{3}{115}$

2a. Events are independent because apples are chosen from different baskets.

b. $(.88)(.88)(.12) \approx .09$
(G G R)

3a. $\frac{942}{952} = \frac{471}{476}$ 3b. $\frac{10}{1000 \text{ bulbs}} = \frac{1}{100}$

4a. $\frac{2M + 2W}{\text{any } 4} = \frac{{}_{10}C_2 \cdot {}_{15}C_2}{{}_{25}C_4} = \frac{45 \cdot 105}{12650} \approx .37$

b. $\frac{3W + 1M \text{ OR } 4W}{\text{any } 4} = \frac{{}_{15}C_3 \cdot {}_{10}C_1 + {}_{15}C_4}{{}_{25}C_4}$

$= \frac{4550 + 1365}{12650} \approx .47$

5. a) $\frac{1}{10 \cdot 10 \cdot 10 \cdot 10 \cdot 10} = \frac{1}{10^5} = \frac{1}{100{,}000}$ b. $\frac{1}{10 \cdot 9 \cdot 8 \cdot 7 \cdot 6} = \frac{1}{30{,}240}$

6 $\frac{\triangle - \odot}{\triangle} = \frac{48 - 4\pi}{48} \approx .74$

7. $\frac{4}{35}$