Math 107. Homework #2. Solutions.

4.56 (a) $\dfrac{\binom{13}{2}}{\binom{52}{2}} = \dfrac{1}{17}$;

(b) $\dfrac{\binom{4}{2}}{\binom{52}{2}} = \dfrac{1}{221}$;

(c) $\dfrac{\binom{4}{1}\cdot\binom{4}{1}}{\binom{52}{2}} = \dfrac{8}{663}$.

4.60 $\dfrac{\binom{4}{2}+\binom{6}{1}\cdot\binom{4}{1}}{\binom{10}{2}} = \dfrac{2}{3}$.

5.4 (a) $L \cap A = \{3, 4\}$;
(b) $L \cup A = \{1, 2, 3, 4, 5, 6\}$;
(c) $A' \cap B' = \{1\}$;
(d) $A \cap B' = \{6\}$.

5.24 (a) $P(Y') = 1 - 0.28 = 0.72$;
(b) $P(Z') = 1 - 0.47 = 0.53$;
(c) $P(Y \cap Z) = 0$;
(d) $P(Y \cup Z) = 0.28 + 0.47 = 0.75$;
(e) $P(Y' \cap Z') = 1 - 0.28 - 0.47 = 0.25$.

5.42 (a) $0.44 + 0.22 + 0.06 = 0.72$;
(b) $0.44 + 0.22 + 0.06 = 0.72$;
(c) $0.22 + 0.44 + 0.22 = 0.88$.

5.50 $0.90 + 0.58 - 0.50 = 0.98$.

5.54 (a) $P(A' \cap B) = 0.18$;
(b) $P(A \cap B') = 0.31$;
(c) $P(A \cup B) = 0.77$;
(d) $P(A' \cap B') = 0.23$.