Note: The problems are taken from the Exercises in Wackerly, Mendenhall, and Scheaffer (2002) unless otherwise noted. For each problem, please *explain your reasoning clearly*. It is *not* acceptable to only provide your final result.

Homework 1 (Due Wed, Sept 16):
1.1, 2.1, 2.5, 2.8, 2.12, 2.15, 2.17, 2.20, 2.22, 2.23,
2.35, 2.36, 2.41, 2.43, 2.45, 2.49, 2.50, 2.52

For 2.12, before the three given questions, answer
1) What are the simple events for this experiment?
2) Are the simple events all equally likely? If not, what are the probabilities that should be assigned to each?

Homework 2 (Due Mon, Sept 28):
2.60, 2.61, 2.69, 2.71, 2.72, 2.78,
2.87, 2.90, 2.93, 2.96, 2.100, 2.104, 2.113, 2.115

For 2.61, also find $P(A|A \cup B)$, $P(A|A \cap B)$, $P(A \cup B|A \cap B)$, and $P(A \cap B|A \cup B)$.

For 2.90, also find
1) the conditional probability that the detector is completely wrong given that it gives a positive reading and a negative reading,
2) the conditional probability that the detector is completely wrong given that it gives a positive reading for either or both of the two suspects.

Homework 3 (Due Mon, Oct 12):
3.1, 3.7, 3.10, 3.20, 3.21, 3.27, 3.29, 3.42, 3.43,
3.57, 3.58, 3.62, 3.76, 3.78, 3.89, 3.93, 3.105, 3.109

Homework 4 (Due Wed, Oct 28):
4.5, 4.6, 4.12, 4.19, 4.26, 4.38, 4.39, 4.40, 4.57, 4.60
4.70, 4.72, 4.75, 4.82, 4.89, 4.98, 4.99

For 4.82, also find the mean and the variance of the time to the failure of the equipment.

For 4.99, also find the threshold so that the error will exceed the threshold only 10% of the time.

Homework 5 (Due Wed, Nov 18): [New date: Mon, Nov 16 & drop 5.113, 5.118]
5.1, 5.6, 5.7, 5.12, 5.17, 5.22, 5.23, 5.32, 5.39, 5.44, 5.45, 5.55, 5.60,
5.62, 5.64, 5.65, 5.70, 5.75, 5.77, 5.78, 5.84, 5.87, 5.89, 5.90, 5.113, 5.118

For 5.7, also find $P(Y_1 + Y_2 > 1)$.

For 5.17, also find the conditional PMF of Y_1 given Y_2.

For 5.65, also find $E[\exp(Y_1 - 3Y_2)]$.