

67.

- a. The probability cannot be over 100%, the two chances can't just be added together to determine the probability over the weekend.
- b. The probability that a baseball player gets a successful hit is much higher than the probability that it will be a home run because home runs are a subcategory of successful hits, so it only makes up part of it.

82.

- a.  $S = \{0, 00, \dots, 36\}$
- b.  $18/38 = 0.47$
- c.  $12/38 = 0.32$
- d.  $18/38 = 0.47$
- e. No, the numbers 0 and 00 are also included in the sample space.
- f. Two mutually exclusive events are black or red colors, and even or odd numbers.
- g. No, they are not independent because it doesn't fit the conditions to make the two events independent.

84.

- a.  $P(R \text{ OR } B) = 36/38 = 0.94$
- b.  $P(1 \text{ DOZEN}) = 12/38 = 0.32$
- c.  $P(1-18) = 18/38 = 0.47$
- d.  $P(19-36) = 18/38 = 0.47$
- e.  $P(\text{one of the columns}) = 12/38 = 0.32$
- f.  $P(\text{EVEN OR ODD}) = 36/38 = 0.94$

85.

- a.  $S = \{G1, G2, G3, G4, G5, Y1, Y2, Y3\}$
- b.  $P(G) = 5/8$
- c.  $P(G|E) = 2/3$
- d.  $P(G \text{ AND } E) = 2/8$
- e.  $P(G \text{ OR } E) = 6/8$
- f. No,  $P(G \text{ AND } E)$  are not mutually exclusive because they contain common outcomes, and do not equal zero.

86.

- a.  $S = \{(1,1), (1,2), (1,3) \dots (1,6), (2,1), (2,2) \dots (2,6), (3,1), (3,2) \dots (3,6), (4,1), (4,2) \dots (4,6)\}$
- b.  $P(A) = 1/6$
- c.  $P(B) = 7/12$
- d.  $P(A|B)$  represents the probability of event A if event B already happened.  $P(A|B) = 1/7$
- e. They are not mutually exclusive. The common outcomes are not equal to zero. It equals  $1/12$  which does not equal zero and means that there are common outcomes.
- f. A and B are not independent events because they do not fit all the conditions to be independent.  $1/12$  is not equal to  $7/72$ .