10. [16 pts - 4 each] Consider the experiment of rolling a die and spinning a wheel marked 1, 2, 3.

(a) List the members of a uniform sample space for this experiment.

\[
\begin{array}{cccccc}
(1,1) & (2,1) & (3,1) & (4,1) & (5,1) & (6,1) \\
(1,2) & (2,2) & (3,2) & (4,2) & (5,2) & (6,2) \\
(1,3) & (2,3) & (3,3) & (4,3) & (5,3) & (6,3) \\
(d, \omega) & & & & & \\
\end{array}
\]

(b) What is the probability that the number on the wheel is at least as large as that on the die?

\[
\frac{6}{18}
\]

(c) What are the odds against getting a sum that's a multiple of 3?

\[12 : 6\]

(d) Interpret these odds verbally, using the phrase "for every."

For every 12 times you don't get such a sum, there are 6 times you do.

11. [4 pts] The probability that G does not happen is 3/8. What are the odds in favor of G?

\[5 : 3\]

12. [12 pts - 4 each] A security code consists of three digits followed by four letters.

(a) How many different codes are possible if repeated digits and letters are allowed?

\[10^3 \cdot 26^4\]

(b) How many different codes use only the letters A, B, or C? (Repeats still allowed.)

\[10^3 \cdot 3^4\]

(c) How many different codes do not repeat any digits or letters and also do not use any 3's, 6's, or 9's?

\[7 \cdot 6 \cdot 5 \cdot 26 \cdot 25 \cdot 24 \cdot 23\]