1. (5 points) A sample space consists of five events: E_1, E_2, E_3, E_4 and E_5. If $P(E_1) = 3P(E_2) = 0.3$. Find the probability of the remaining events if you know that the remaining events are equally probable (i.e., the remaining events have the same probability of occurrence).

2. Suppose two balanced coins (i.e., $P(\text{head}) = P(\text{tail}) = 0.5$) are tossed and the upper faces are observed.

   (a) (3 points) List the sample points for this experiment.

   (b) (3 points) Assign a reasonable probability to each sample point. (Are the sample points equally likely?)

   (c) (3 points) Let A denote the event that *exactly* one head is observed and B the event that *at least one* head is observed. List the sample points in both A and B.

   (d) (5 points) From your answers to part (c), find $P(A), P(B), P(A \cap B)$, and $P(A \cup B)$.

$P(E_1) = 3P(E_2) = 0.3$

$3P = 0.3$

$P = \frac{0.3}{3} = 0.1$