8. A random sample without replacement of size $n = 5$ is selected from a finite population with $N = 12$ individuals. The sample is selected in such a way that all samples of size five are equally likely. Samples are unordered - in other words, a sample with the same five individuals are selected in a different order are still considered the same sample.

   (a) Describe the sample space $\mathcal{S}$. Note: There are 792 outcomes in the sample space.
   (b) Describe the power set $\mathcal{P}_\mathcal{S}$ of $\mathcal{S}$. Give an expression for $\mathcal{C}(\mathcal{P}_\mathcal{S})$.