Problem 3: Counting Onto Functions

Let n be a positive integer. If we randomly pick a function

$$f : \{1, \ldots, n\} \to \{\text{Apple}, \text{Banana}, \text{Cherry}\}$$

what is the probability of f *not* being onto (surjective)?

As always, show your work, fully explain and justify your answer. A solution mainly obtained by computers or calculators will not be accepted.

Posting Date 9/19/2020. Submit solutions to Noah Aydin, Mathematics Department, RBH 319 by e-mail or hard-copy by noon on Sep 26, 2020. An email submission must be a single pdf file. Hard copy submissions must be dropped in the file holder at my office door (Hayes 319) and must include a time stamp.