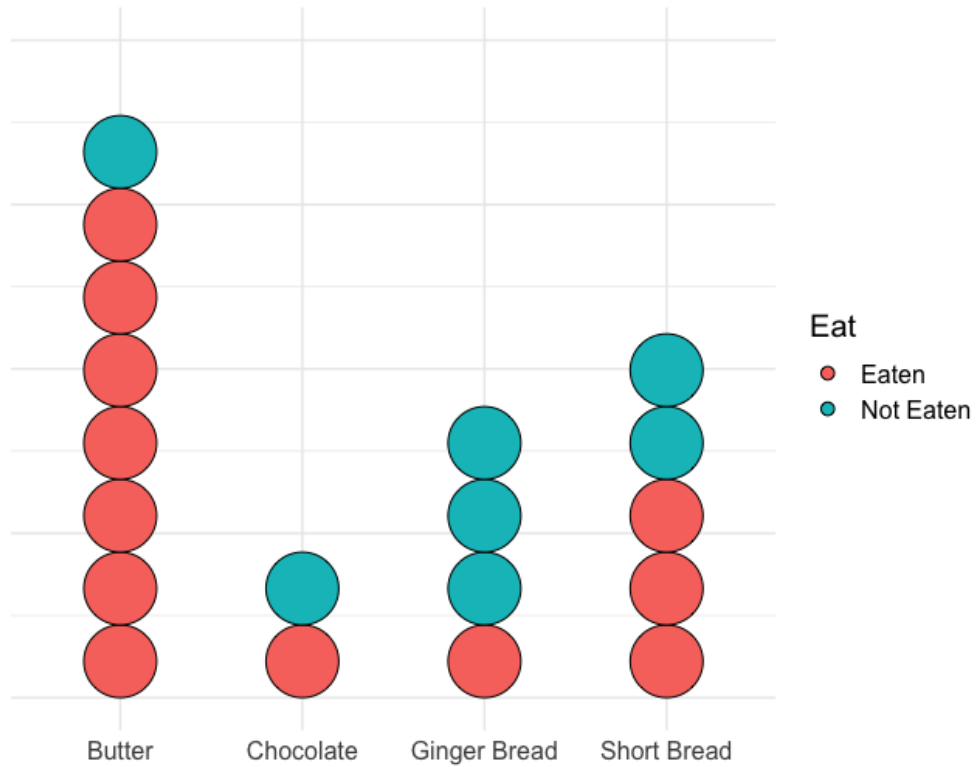1. Dr. Vince outlined his goal for the number of cookies he wants to eat over the holidays in the plot below. Each dot represents 5 cookies. Red dots indicate cookies Dr. Vince has already eaten, while blue dots indicate cookies he still has yet to eat.

How many more cookies must Dr. Vince eat to reach his goal?

Part II

2. Dr. Vince's cookie eating and milk drinking habits for 2022 are shown below. Sometimes he pairs his cookie with a glass of milk, other times he doesn't. (951 indicates the number of instances he has a butter cookie **and** regular milk).

	No Milk	Regular Milk	Chocolate Milk
Butter	222	951	49
Chocolate	8	80	244
Ginger Bread	1	73	39
Short Bread	9	100	224

Consider all the instances Dr. Vince slurped down a glass of milk, in what proportion of those instances was he eating a butter cookie? (Round your answer to 4 decimal places).

3. Dr. Vince eats a butter cookie on one third of days. Given that he does eat a butter cookie, he will eat a chocolate chip cookie with probability $\frac{1}{2}$. Given that he does not eat a butter cookie, he will eat a chocolate chip cookie with probability $\frac{1}{4}$. Given he eats a butter cookie and a chocolate chip cookie, he will have a glass of milk with probability $\frac{1}{2}$. On the other hand, the probability of Dr. Vince having a glass of milk is only $\frac{1}{8}$ if he doesn't have a butter cookie and does not have a chocolate chip cookie. In each case where he eats one type of cookie, but not the other the probability he has a glass of milk is $\frac{1}{4}$.

   You pick a random day. Given that you see Dr. Vince slurping down a glass of milk, the probability that he eats a butter cookie can be written in reduced form as $\frac{a}{b}$. What is $a + b$?