

# Practice with Calculating Expected Value

Consider drawing an string from  $\{1,2,4\}^n$  where at each position, 1 is chosen with probability  $1/2$ , and 2 and 4 are each chosen with probability  $1/4$ . What is the average sum of digits in the string of length  $n$ .

1. Sample space and relevant random variable.
2. Write random variable as sum of weighted indicator random variables
3. Calculate the average using linearity of expectation and properties of indicator random variables.