

What kind of random variable do I have?

One clue: look at range of values your random variable can take.

If possible values are 0 or 1, Indicator random variable  
also known as a Bernoulli random variable

If possible values are  $0, 1, 2, \dots, n$  then perhaps it is a Binomial( $n, p$ )  
random variable for some value of  $p$ .  
Not sure! But possible. Check mass,  
check to see if it is a sum of  
 $n$  independent Bernoulli random variables

If possible values are  $1, 2, 3, 4, \dots$  ← list doesn't stop at any  $n$ ,  
then maybe it is a Geometric  
random variable

If possible values are  $0, 1, 2, 3, 4, \dots$  perhaps it is a Geometric # of losses,  
i.e. like a Geometric but not  
counting the success itself.

Example that is not Geometric:

Draw cards from a 52-card deck, without replacement,

let  $X$  be the number of cards until Ace of hearts appears.

So  $X$  takes on values  $1, 2, 3, \dots, 52$  ← stops here, so not Geometric.

Not Binomial either since 0 is not allowed (other reasons too)

We will learn more about such a random variable later.

Main point: Think about the kind of values a random variable can  
take, when you are trying to figure out what kind of  
distribution it has, i.e. what kind of random variable it is!