

6.1: What is a Random Variable?

A **random variable** is a variable in which the value depends upon an experiment, observation or measurement. This differs from Math classes where one can assign values to the random variables. Here, the value is assigned by a random process and is not known in advance. For the purposes of this class, the variable will be numeric.

This chapter covers random variables for data that is discrete, while the next chapter explores random variables for continuous data.

Like in Mathematics, we will use letters as symbols to represent random variables. Upper case letters refer to the random variable as a function of some random activity. Lower case letters refer to values of the random variable, which are numbers.

Example: Roll a die

A fair six-sided die is rolled. Let the random variable X represent the numeric value of the die roll. A five is rolled.

Upper Case X = the **function** = the number seen when a fair six-sided die is rolled.

Lower Case x = the **value** of the roll = 5

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