

Constants, Variables, and Random Variables

Whenever you look at a number, always answer this question:

Is the number a constant, a variable, or a random variable?

If the numbers are random variables, you will need to determine a probability distribution for them. We discuss distributions in an upcoming section.

What is the number?	Description	Examples
Constant	A value that doesn't change.	<ul style="list-style-type: none">• There are seven days in a week; this number will not change.• The number of days in a week is a constant.
Variable	A value that changes, but whose exact value can be determined.	<ul style="list-style-type: none">• The hourly pay rate of employees can vary in value, but we are able to determine what each employee's rate is. While the pay rate varies from one employee to the next, the pay rates are values (set amounts) we can determine.• Employee pay rate is a variable.
Random Variable	A value that changes in some manner, but where the exact value cannot be determined.	<ul style="list-style-type: none">• The price of a gallon of gas will affect our travel costs. We are not able to determine what our travel costs will be exactly as we cannot determine the exact cost of a gallon of gas (the cost is always changing).• The cost of a gallon of gas is a random variable.

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