Exercises: Deterministic and stochastic variables

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True or False

8/8 points (ungraded)

The following questions are related to the video about deterministic and stochastic variables.

a) A stochastic variable can never be one single number.

- (•) True ✔
- ( ) False

Answer

Correct: True, it is always characterized by a distribution.

b) When a variable is stochastic, it means that this variable may have any arbitrary value.

- ( ) True
- (•) False ✔

Answer
Correct: False, this depends on the domain of the distribution.

c) A deterministic variable does not have a probability distribution.

- (•) True ✔
- ( ) False

Answer
Correct: True, a deterministic variable is a single number, that we may or may not know.

d) In an estimation problem, the 'unknown' is a number that we can find by calculation.

- ( ) True
- (•) False ✔

Answer
Correct: False, we will never know the value of the unknown, we may only estimate it.

e) A stochastic variable is the same as a random variable

- (•) True ✔
- ( ) False

f) Observations (i.e., the actually observed values, or realizations) are always deterministic.

- (•) True ✔
- ( ) False

Answer
Correct:
True, but tricky: once the observations are actual numbers obtained from the observing process, these numbers are deterministic. The observations are the “realisations” of the stochastic variables, which we will call ‘observables’: the quantities which are not yet actually measured.

g) Idealization accuracy is not related to the quality of the observation technique.

- (•) True ✔
- ( ) False

Answer
Correct: True, it tells us whether we really measure the quantity we're really interested in.

h) In our model of observation equations, the unknown parameters are indicated with the letter 'y'.

- True
- False ✔

Answer
Correct: False, the parameters are the unknowns, which we indicate with the letter (vector) x.

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✔ Correct (8/8 points)