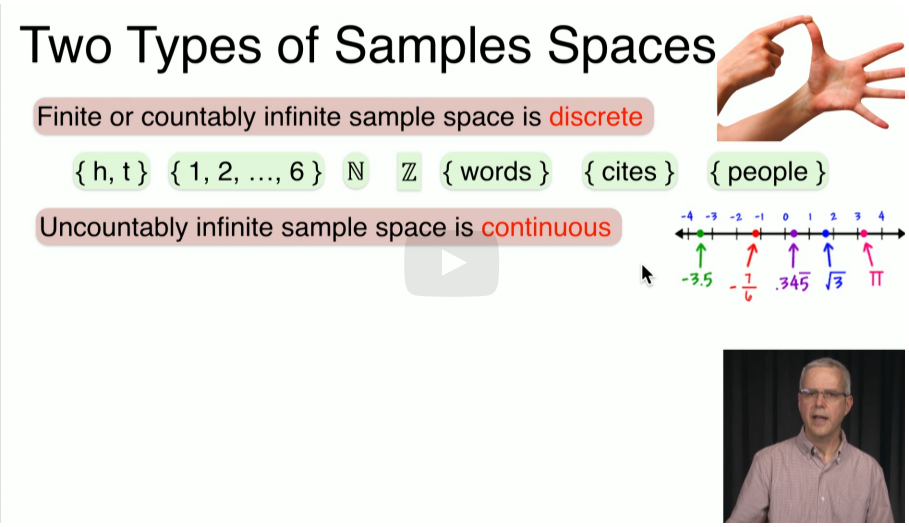
Problem Sets due Jun 1, 2022 17:13 +03

Video



instead of x like y and z and so on.

And just like here we'll stat with x,

but if we need more variables then we denote y and z,

but again they'll be capital Y and capital Z

to indicate that they are random.

Alright, now next we want to talk

about probability of the outcome.

So intuitively, the probability, or likelihood,

of an outcome, x omega

omega is the sample space and then some

value x is we denote this by P(x),

or the probability that this random variable capital X

gets the the value of small x,

is the fraction of times that this little x

5.1_Probability_Introduction

POLL

Which of the following outcomes are random (not certain) when rolling a six-sided dice?

RESULTS

A real number.	**8%**
An even number.	**73%**
A positive number.	**19%**

Submit

Results gathered from 26 respondents.

FEEDBACK

The outcome of dice is certainly real and positive, but it may or may not be even, so it is random.

1 (Graded)

1/1 point (graded)

Which of the following outcomes are random (not certain) after throwing a six-sided dice?

- [x] Get number 3
- [x] Get an even number
- [ ] Get a positive number

✔

Explanation
- True. We may get e.g. 4 as an outcome, which is not 3.
- True. We may get e.g. 3 as an outcome, which is not even.
- False. All outcomes of a six-sided dice are positive.

Submit You have used 1 of 2 attempts

Answers are displayed within the problem

2 (Graded)

1/1 point (graded)
Imagine a single experiment where we flip a coin 6 times, and get “head, tail, head, head, head, head”.

Which of the following statements hold?

- [ ] The coin is not fair.
- [ ] The coin's "tail" probability is $1/6$.
- [x] The sequence "head, tail, head, head, head, head" is an outcome in the sample space.
- [ ] The sample space of the experiment is {head, tail}.

✔

Explanation
- False. The outcome is random and the coin may be fair.
- False. In this experiment 1 out of 6 outcomes was "tail", but the coin's "tail" probability may differ.
- True. The sample space consists of all secquences of six "head" and "tail", and this is one of them.
- False. The sample space is a set of tuples
$\{(\text{head, head, head, head, head, head}), (\text{head, head, head, head, head, tail}), \cdots, (\text{tail, tail, tail, tail, tail, tail})\}$
.

Submit You have used 4 of 4 attempts

Answers are displayed within the problem

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