## Distribution Types

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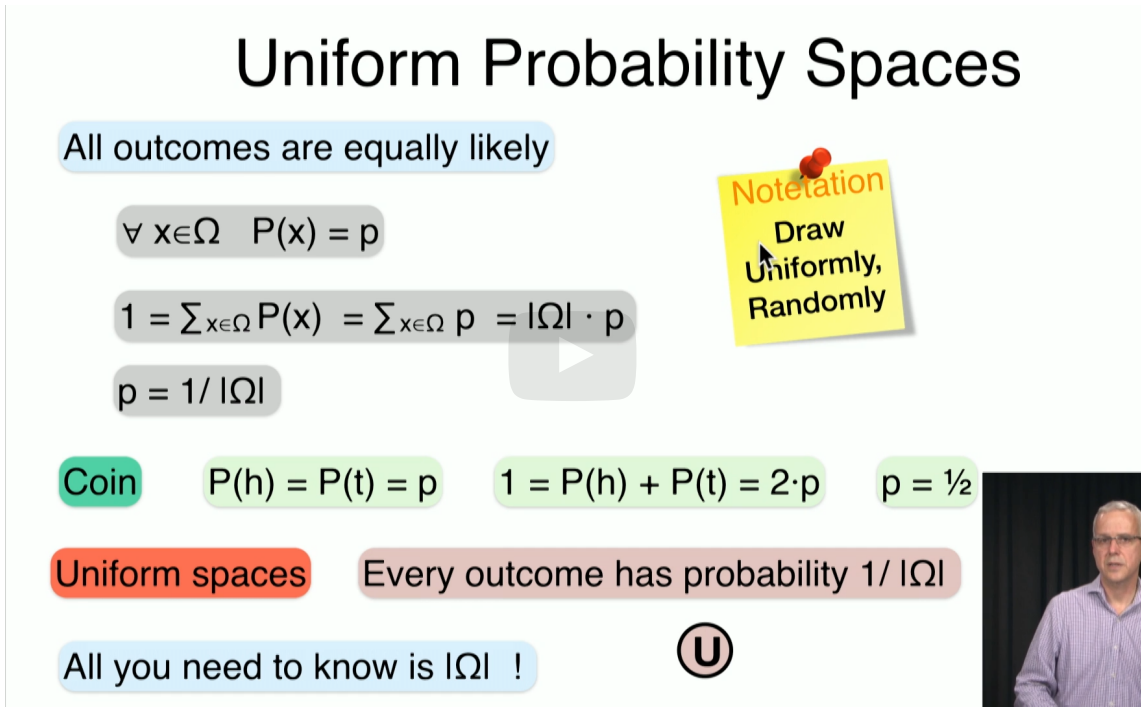
Problem Sets due Jun 1, 2022 17:13 +03

**Video**




We'll say that we'll flip a coin,

or toss a coin, and the results are equally likely.

In other words, the space is uniform.

That means the probability of heads

is equal to the probability of tails.

As we saw in the previous slide,

that means that each of them has a probability

which is one over the size of the sample space,

or one over two.

If we take a fair die,

the possible outcomes are one up to six.

The size of the sample space is six.

Therefore, if you roll the die,

if we assume the die's fair,

the faces are equally likely

5.2_Probability_Distribution_Types

POLL

An outcome in a uniform probability space has probability 1/10, what is the size of the sample space?

RESULTS

| | |
|---|---|
| **5** | **0%** |
| **10** | **100%** |
| **20** | **0%** |
| **None of the above** | **0%** |

Submit

**Results gathered from 26 respondents.**

FEEDBACK

The answer is 10.

## 1 (Graded)

1/1 point (graded)

Which of the following sample spaces are uniform?

- [ ] {land,sea} for a randomly point on a globe
- [x] {odd, even} for a random integer from {1,2,. . . ,100}
- [ ] {leap year, non-leap year} for a random year before 2019
- [ ] {two heads, two tails, one head and one tail} when flipping two fair coins

{distance to origin} for a random point in {−3, −1, 1, 3} × {−4, −2, 2, 4}

**Explanation**
- False. About 70% of the times will be "sea".
- True. Half the time we'll observe even, and half odd.
- False. "non-leap year" is roughly three times more likely.
- False. "one head and one tail" is more likely.
- True. There are four distances, and each shared by 4 of the 16 points.

**?** **Hint (1 of 1):** The last part, observe that the 16 points are at four different distanes from the origin. The question asks whether these four distances are equally likely.

Next Hint

Submit You have used 3 of 3 attempts

Answers are displayed within the problem

## 2 (Graded)

1/1 point (graded)
Given an uniform probability space $\Omega = \{1, 2, 3, \cdots, 100\}$, what is the probability that the outcome contains the digit $1$ (e.g. $19, 91$)?

20/100 **Answer:** 1/5

$\frac{20}{100}$

**Explanation**
There are 20 of them. Note that $11$ should not be counted twice.

Submit You have used 2 of 4 attempts

Answers are displayed within the problem

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