Q1. What is a probability distribution, exactly? If the values are meant to be random, how can you predict them at all?

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A probability distribution is a mathematical function that describes the likelihood of different outcomes
in a random experiment.


Probability distributions can be either discrete or continuous.
While the individual values generated from a probability distribution may be random.
```

Q2. Is there a distinction between true random numbers and pseudo-random numbers, if there is one? Why are the latter considered “good enough”?

```
Yes, there is a distinction between true random numbers and pseudo-random numbers.

Pseudo-random numbers are considered "good enough" for many applications because they exhibit properties
similar to true random numbers. They pass statistical tests for randomness, have a uniform distribution, and
show no predictable patterns or correlations.
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Q3. What are the two main factors that influence the behaviour of a "normal" probability distribution?

```
Mean and standard deviation
```

Q4. Provide a real-life example of a normal distribution.

```
heights of the people follows random distribution
```

Q5. In the short term, how can you expect a probability distribution to behave? What do you think will happen as the number of trials grows?

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In the short term, the behavior of a probability distribution can be unpredictable.
```

```
In a small number of trials, the observed outcomes may deviate significantly from the expected probabilities.
As the number of trials grows, the behavior of the probability distribution becomes more predictable and tends
to converge to the expected probabilities.
```

Q6. What kind of object can be shuffled by using random.shuffle?

```
This is used to shuffle any mutuable sequence.
```

Q7. Describe the math package's general categories of functions.

```
Basic mathematical functions
Trignimetric functions
Exponentinal and Logarithamic functions
```

Q8. What is the relationship between exponentiation and logarithms?

```
if log(x) [base e]=m
then x=e^m
```

Q9. What are the three logarithmic functions that Python supports?

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math.log(x):log with base e
math.log10(x):log with base 10
math.log2(x):log with base 2
```