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

It helps to plot out all the different outcomes of an experiment. Adding all the probabilities helps predict a range.

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

Random numbers use unpredictable physical means to generate numbers and Pseudo-random numbers use mathematical algorithms.

Pseudo- Random numbers produces sequences of random numbers based on a algorithm and thus are not predictable thus more preferred.

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.

Tossing a coin

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?

The short-term results can be vague and include multiple factors. As number of trials grow the probability of success increases and gets closer to a normal distribution.

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

Lists

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

numeric, trigonometric, logarithmic, and exponential.

Q8. What is the relationship between exponentiation and logarithms?

Logarithmic functions are always inverses of exponential functions.

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

log(a,(Base))

log2(a)

log10(a)