

SESSION 4 OF

STATISTICS FOR BUSINESS

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TODAY'S TOPIC

**PROBABILITY
DISTRIBUTION**

RANDOM VARIABLES

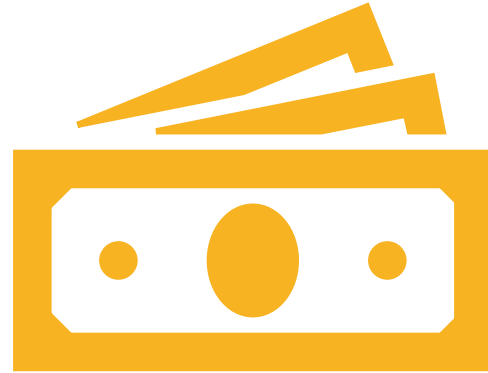


Discrete



Continuous

TYPES OF RANDOM VARIABLES



EXPECTED VALUE

VARIANCE



STANDARD DEVIATION



PROBABILITY DISTRIBUTION FUNCTIONS



Probability Mass function (PMF)



Probability density function (PDF)



Cumulative distribution function (CDF)

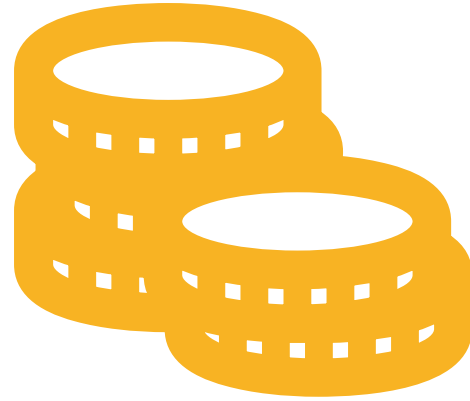
PROBABILITY MASS FUNCTION (PMF)

CUMULATIVE DISTRIBUTION FUNCTION (CDF)

**UNIFORM
DISTRIBUTION**



BINOMIAL DISTRIBUTION



EXAMPLE

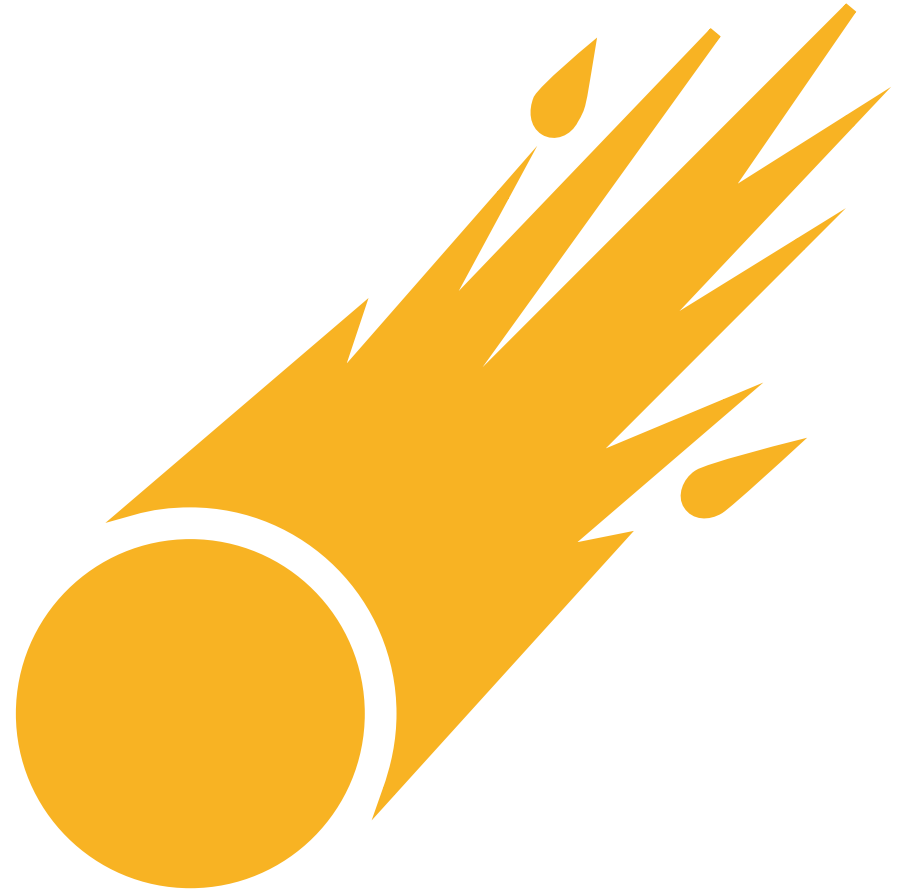
A COIN IS TOSSED 10 TIMES. WHAT IS THE
PROBABILITY OF GETTING EXACTLY 3 HEADS?

A vertical yellow bar with a wavy, scalloped edge on the left side of the slide.

POISSON DISTRIBUTION

EXAMPLE

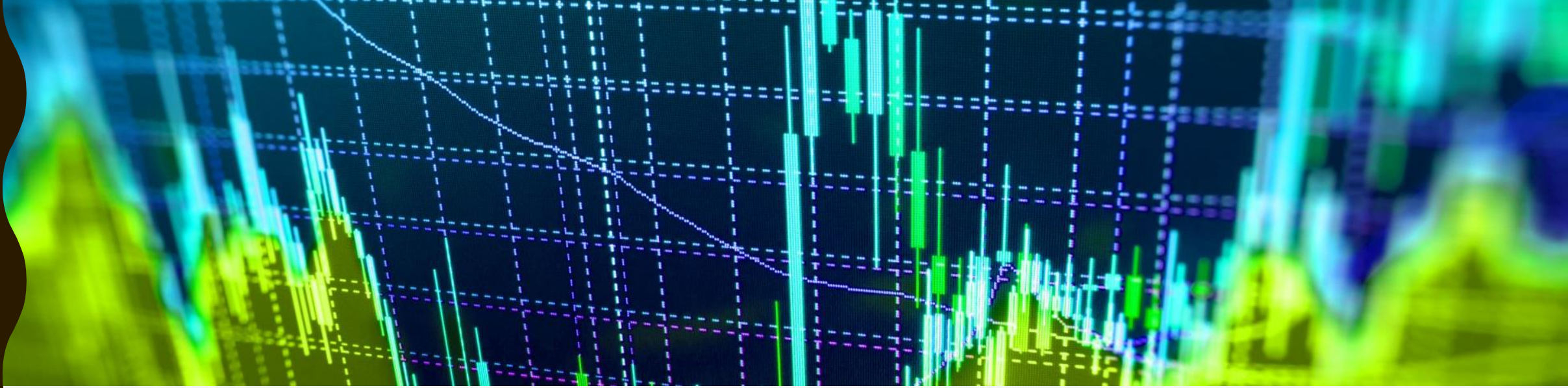
We were told to expect 5 meteors per hour on average. What is the probability that we see at least 2 meteors in any 1 hour?



PROBABILITY DENSITY FUNCTION (PDF)

UNIFORM DISTRIBUTION





EXPONENTIAL DISTRIBUTION

NORMAL DISTRIBUTION

$$f(x) = \left(\frac{1}{\sigma\sqrt{2\pi}} \right) e^{-\left[\frac{1}{2} \left(\frac{x-\mu}{\sigma} \right)^2 \right]}$$

STANDARDIZATION

$$Z = \frac{x - \mu}{\sigma}$$