**Chapter 5: Discrete Probability Distributions & Chapter 6: Continuous Probability Distributions**

|  | **Discrete Random Variable** | **Continuous Random Variable** |
| --- | --- | --- |
| **Definition** | **Discrete variables** produce outcomes that come from a **counting process**. | **Continuous variables** produce outcomes that come from a **measurement**. |
| **Example** | Number of girls in a classroom.  Number of blue marbles in a bag.  Number of heads when flipping 5 coins.  Number of typos on a page.  Number of classes you are taking. | Height of boys in class.  Weight of students in a class.  Amount of lemonade in a jug.  Time it takes to run a race.  Lifetime of a battery. |
| **Distribution** | **Binomial distribution**  **Poisson distribution** | **Uniform distribution**  **Normal distribution** |

|  | **Binomial distribution** | **Poisson distribution** | **Uniform distribution** | **Normal distribution** |
| --- | --- | --- | --- | --- |
| **Definition** | X: the number of successes in n trials | X: the number of events in a given unit of time/distance/area/volume  : mean number of events in a given unit of time/distance/area/volume |  |  |
| **Keyword** |  | Poisson | Uniform | Normal |
| **Notation** |  |  |  |  |
| **Mean & Variance** |  | expected value  variance  standard deviation = sigma |  |  |
| **Probability** |  |  |  | 🡪 CASIO |
| **Given probability.**  **Find value** | N/A | N/A | N/A | Find 🡪 CASIO |

1. **Binomial distribution** X: the number of successes in n trials
2. **Poisson distribution** X: the number of events in a given unit of time/distance/area/volume
3. **Uniform distribution**

**Chart

Description automatically generated with low confidence**

1. **Normal distribution**

**Bell Shaped**Chart, line chart

Description automatically generated

**Symmetrical**

**Mean, Median and Mode are Equal**

**Location is determined by the mean, μ.**

**Spread is determined by the standard deviation, σ.**

**The random variable has an infinite theoretical range: -∞ to +∞.**

Chart

Description automatically generatedA picture containing chart

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