Some Common Distributions

**Rectangular**
- Many tosses of die
  - Example: # of children in a family

**Skewed to Right** ("tail" at right)
- Example:

**Skewed to Left** ("tail" at left)
- Example:

Note: Most important one for statistics?

**Bell-Shaped or NORMAL CURVE** — Many examples!
- Exs: see p. 798 (2nd paragraph) — weights, heights of males, females, IQs, weights of watermelons,...

If histogram is smoothed out, in general case, then it has

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**Characteristics:**

1. The area under bell curve represents a whole population (or sample); $100\%$ of the population and $100\% = 1$. So $\text{area} = 1$

2. The curve is symmetric;
   \[ \frac{50\%}{50\%} \text{ of data falls below mean } \overline{x} \]

3. $\text{Mean} = \text{Median} = \text{Mode}$

4. Exs: IQ, SAT scores, heights, weights of people, weights of watermelons, shoe sizes...

5. Looking at diagram below, $+1$ std. dev. or $+1$ $\sigma$
   
   \[ 68\% \text{ of data falls within one std. dev.'s of mean} \]

   \[ 95\% \text{ of data falls within two std. dev.'s of mean} \]

   \[ 99.7\% \text{ of data falls within three std. dev.'s of mean} \]

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