**6.1 / 6.2 Applications for a Normal Curve**

Recall... if "normally distributed":

- Sketch a normal curve
- Label the mean ($\mu$) and any boundary values
- Shade the region

\[
P(x_L < x < x_U) = \text{normalcdf}(x_L, x_U, \mu, \sigma)
\]

$\text{area}$ = area between $x_L$ and $x_U$

- Use if asked to find area or probability or proportion or percent

\[
x^* = \text{invNorm}(\text{percentile}, \mu, \sigma)
\]

$x^*$ = $x$ value

- Use if asked to find an $x$-value

If an SRS of size $n$ is taken and you need to find the probability the mean is:

\[
P(\overline{x}_L < \overline{x} < \overline{x}_U) = \text{normalcdf}(\overline{x}_L, \overline{x}_U, \mu_{\overline{x}}, \sigma_{\overline{x}})
\]

$\overline{x}$ → $\overline{x}_L$ $\mu_{\overline{x}}$ $\overline{x}_U$

- Normal if... $\overline{x}$ is normally distributed
- $n \geq 30$

* If $z$ use $\mu = 0, \sigma = 1$

* If $-\infty$ use $-100000$
  $\infty$ use $100000$