The $100(1-\alpha)\%$ confidence interval for $\mu$ is

$$\bar{x} \pm t_{1-\alpha/2,n-1}\frac{s}{\sqrt{n}}$$

- Recall, the t quantile $t_{1-\alpha/2,n-1}$ can be computed using the `qt()` function.
- The quantity $\frac{s}{\sqrt{n}}$ is the **standard error**.
- The quantity $t_{1-\alpha/2,n-1}\frac{s}{\sqrt{n}}$ is the **margin of error** and is half of the width of the interval.

The $100(1-\alpha)\%$ confidence interval for $p$ is

$$\hat{p} \pm z_{1-\alpha/2}\sqrt{\frac{\hat{p}(1-\hat{p})}{n}}$$

- Recall, the standard normal quantile $z_{1-\alpha/2}$ can be computed using the `qnorm()` function.
- The quantity $\sqrt{\frac{\hat{p}(1-\hat{p})}{n}}$ is the **standard error**.
- The quantity $z_{1-\alpha/2}\sqrt{\frac{\hat{p}(1-\hat{p})}{n}}$ is the **margin of error** and is half of the width of the interval.