EX:

* You randomly select 16 coffee shops and measure the temperature of the coffee sold at each. The sample mean temperature is 162.0 F with a sample standard deviation of 10.0 F. Construct a 95% confidence interval for the population mean temperature of coffee sold. Assume the temperatures are approximately normally distributed.

$n = 16$

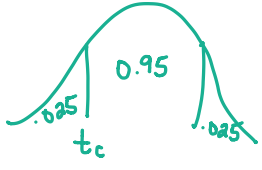
$\bar{x} = 162.0$

$s = 10$

$C = 0.95$

$df = 16 - 1 = 15$

$t_c = 2.13$



$$E = 2.13\left(\frac{10}{\sqrt{16}}\right) = 5.3$$

$$162.0 - 5.3 < \mu < 162.0 + 5.3$$

$$\boxed{156.7 < \mu < 167.3}$$

95% confident that the population mean will be in this interval

EX:

* You randomly select 36 cars of the same model that were sold at a car dealership and determine the number of days each car sat on the lot before it was sold. The sample mean is 9.75 days, with a sample standard deviation of 2.39 days. Construct a 99% confidence interval for the population mean number of days the car model sits on the lot.

$n = 36$

$\bar{x} = 9.75$

$s = 2.39$

$c = 0.99$

$$E = 2.72\left(\frac{2.39}{\sqrt{36}}\right) = 1.08$$

$9.75 - 1.08 < \mu < 9.75 + 1.08$

$\boxed{8.67 < \mu < 10.83}$

99% confident that population mean will be in this interval

$df = 36 - 1 = 35$

$t_c = 2.72$