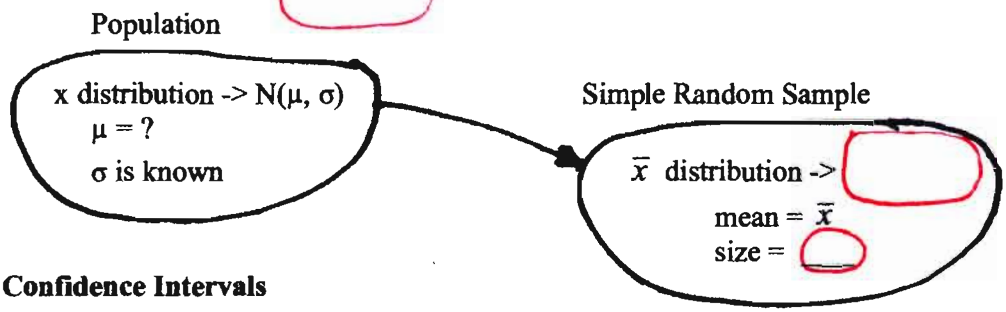
Fill in the red bubbles below: name: ______________________________

Situation 1. A population has a Normally distributed variable x. From this population we draw a Simple Random Sample of size The mean, μ, of the population is unknown. The standard deviation of the population, σ, is known. The mean of the sample, $\bar{x}$, is computed. The population variable x has the distribution $N(\mu, \sigma)$ and the sample mean $\bar{x}$ has the distribution Here is the picture:



Confidence Intervals

We can estimate μ with

$\mu =$

Where is determined by the confidence level C. The table below gives for some common values of C:

C			

Hypothesis Testing.

The Null Hypothesis:
H_0: $\mu = \mu_0$

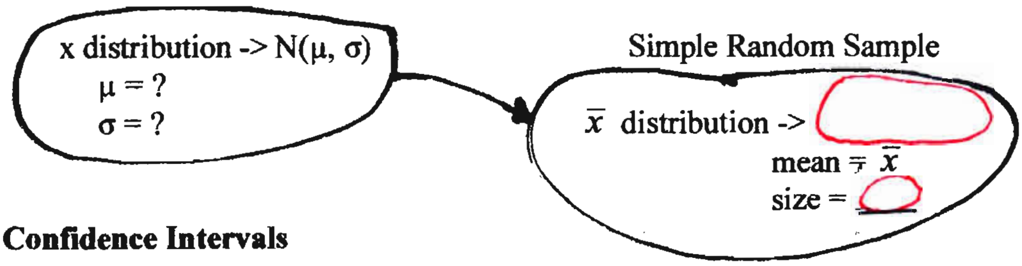
The Alternative Hypothesis:
H_a: $\mu > \mu_0$

First compute the statistic using the formula:

Then for significance level determine Then if we reject the for the and say that we have

Situation 2. A population has a Normally distributed variable x. From this population we draw a Simple Random Sample of size . The mean, μ, of the population is unknown. **The standard deviation of the population, σ, is also unknown.** From the sample we compute both the mean $\bar{x}$ and the standard deviation . The population variable x has the distribution N(μ, σ) and the sample mean $\bar{x}$ has the distribution with mean and n-1 . Here is the picture:

Population



Confidence Intervals

We can estimate μ with

$\mu =$

Where is determined by the confidence level C and the of the t distribution (n-1). The table below is similar to the table for the z procedures:

C	90%	95%	99%

Hypothesis Testing.

The Null Hypothesis:
H_0: $\mu = \mu_0$

The Alternative Hypothesis:
H_a: $\mu > \mu_0$

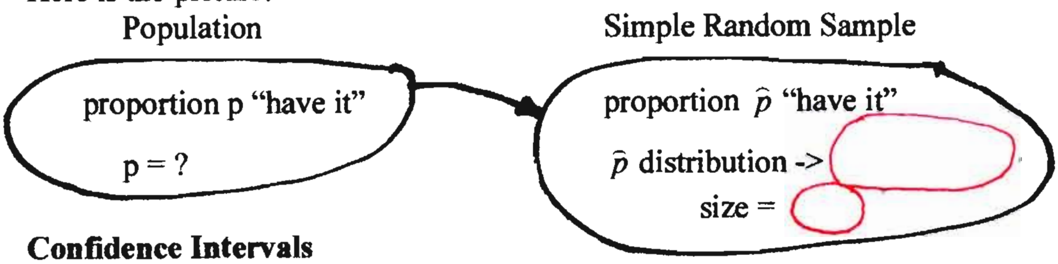
First compute the statistic using the formula:

Then for significance level determine . Then if we reject the and say that we have for the

Situation 3. A proportion p of a population has some particular outcome of interest. From this population we draw a Simple Random Sample of size . The proportion, p, of the population is unknown. The proportion of the sample with the outcome of interest is computed as $\hat{p} = \frac{\textit{number of successes in the sample}}{\quad}$. For a sufficiently large sample size

the $\hat{p}$ statistic has the distribution

Here is the picture:



Confidence Intervals

We can estimate p with

$p =$

Where is determined by the confidence level C. The table below gives for some common values of C:

C			

Hypothesis Testing.

The Null Hypothesis:
H_0: $p = p_0$

The Alternative Hypothesis:
H_a: $p > p_0$

First compute the statistic using the formula:

Then for significance level determine . Then if we reject the and say that we have for the