**Sampling Distributions:(6.4)**

 1) Sampling Distributions of sample Mean

 2) Sampling Distribution of the sample Proportion :

 3) Sampling Distribution of the two sample means

 4) Sampling Distribution of the two sample Proportions

(ask about probability of sample statistics , , , )and give information about population parameters

Steps to answer:

* Compute means ( , , , )
* Compute variance ( , , , )
* Compute standard deviation or "sd" Standard error s.e "( , , , )
* Use ,(Standard deviation = Standard error)

**Symbol**

|  |  |  |
| --- | --- | --- |
|  | sample | population |
| mean |  | **µ** |
| variance |  |  |
| Standard deviation  | s | **σ** |
| proportion |  | **p** |

**Estimate population parameters**

* point estimate
* interval estimate

point estimate:

 **Point estimate for (µ ) is**

**Point estimate for (σ ) is S**

**Point estimate for (p ) is**

 **Point estimate for (- ) is**

 **Point estimate for (- ) is**

**Interval estimate(ch6)**

1. interval for population mean **µ**
2. interval for two population means **-** (not related)
3. interval for population proportion **p**
4. interval for two population proportions **-**
5. interval for two population means **-** (related or paired)(in chapter 7)

(ask about population parameters **µ** , **-** , **p** , **-** and give information about sample statistics )

The general formula:

 point estimate ± (table value(z or t)) ×

= Estimator (reliability coefficient) x (standard error)

 \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

 =

 = reliability coefficient

= pooled estimate proportion

**Test Hypotheses (ch7)**

1. test for population mean **µ**
2. test for two population means **-** (not related)

note: degree of freedom for T is

(when use T-test)

1. test for population proportion **p**
2. test for two population proportions **-**
3. test for two population means **-** (related or paired)

note: degree of freedom for T is

ask about population parameters **µ** , **-** , **p** , **-** and give information about sample statistics

 **Steps**

1. data
2. assumptions
3. hypotheses
4. test statistic
5. decision
6. conclusion

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**Paired Sample**

1. Confidence interval
2. test hypotheses

 **1)Confidence interval(Paired or related population)**

Use (df=n-1)

 And

 ( mean of difference)

 (variance of difference)

**2)Test hypotheses(Paired or related population)**

 1) data

 2)Assumption: normal + paired

 3)Hypotheses:

 we have three cases

 Case I : H0: μ 1 = μ2 → μ 1 - μ2 = 0→

 HA: μ 1 ≠  μ 2 → μ 1 - μ 2 ≠ 0  →

 e.g. we want to test that the mean for first population is different from second population mean.

 Case II : H0: μ 1 = μ2 → μ 1 - μ2 = 0 →

 HA: μ 1 >  μ 2 →μ 1 - μ 2 > 0 →

 e.g. we want to test that the mean for first population is greater than second population mean.

 Case III : H0: μ 1 = μ2 → μ 1 - μ2 = 0 →

 HA: μ 1 <  μ 2 →μ 1 - μ 2 < 0 →

 e.g. we want to test that the mean for first population is less than second population

5)Decision

 Reject if :

Case1:

Case2:

Case3: