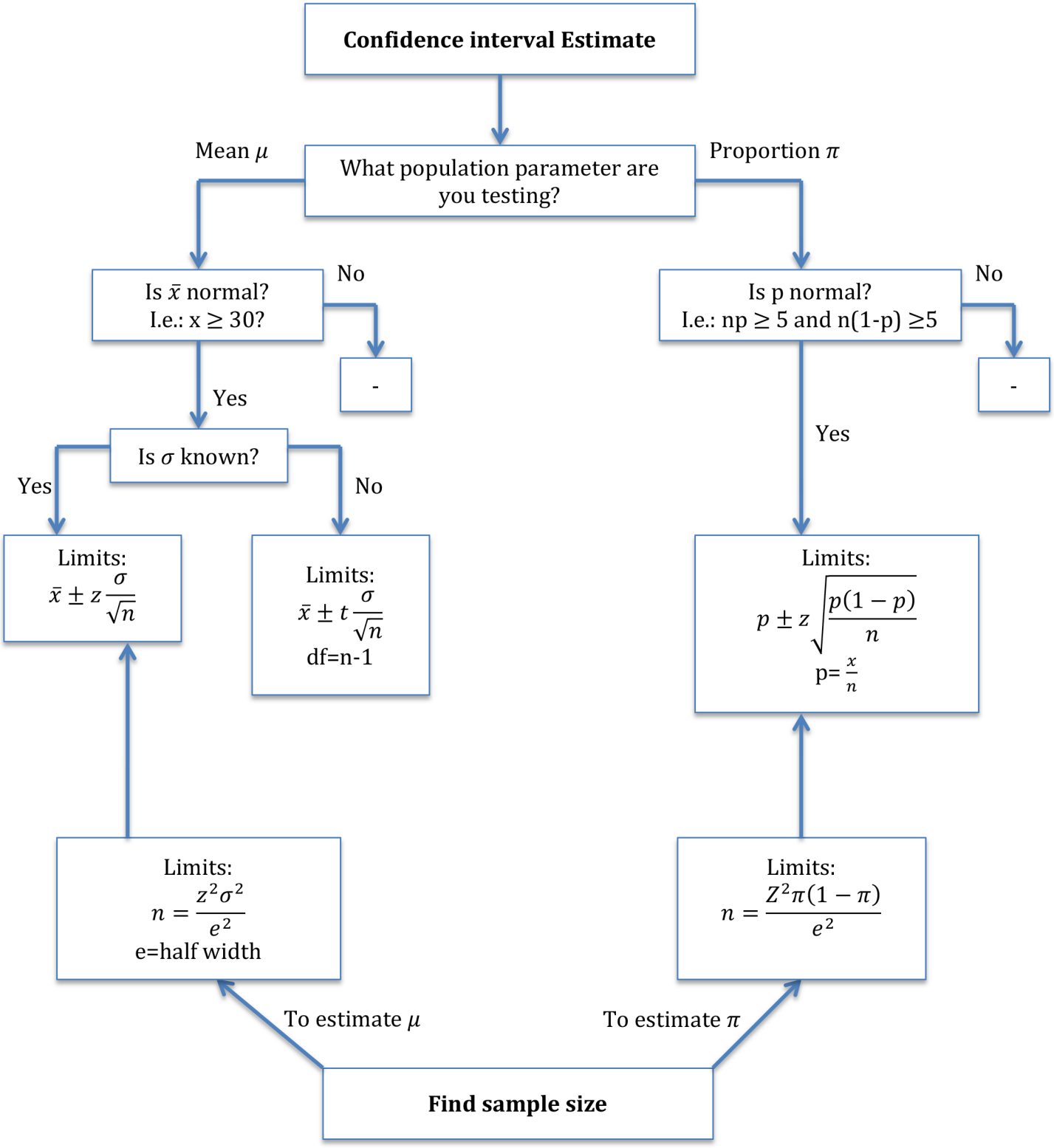
EASYGRADE TUTORIALS

QMS 202 TEST 1 CRIB SHEET (FRONT)



EASYGRADE TUTORIALS

QMS 202 TEST 1 CRIB SHEET (BACK)

CALCULATOR STEPS

To find confidence intervals:

1- For the mean (σ known):

Stat → INTR → Z → (1-S)

Data: Var
C-Level: (given confidence ex. 95%) 0.95
σ: Given standard deviation
$\bar{x}$: Given mean
n: Sample size

**Use this when the standard deviation of the entire population is given

2- For the mean (σ known):

Stat → INTR → t → (1-S)

Data: Var
C-Level: (given confidence ex. 95%) 0.95
$\bar{x}$: Given mean
sx:Given standard deviation
n: Sample size

**Use this when the standard deviation of the sample only is given

3- For the proportion:

Stat → INTR → Z → (1-P)
C-Level: 0.95
x: number from the sample that has the specific characteristic
n: given sample size

To find sample size:

1- to estimate μ:

$$n = \frac{z^2\sigma^2}{e^2}$$

You will be given the values e and σ; you will have to find z using the following steps:

You will also be given the % confidence, for example 95%:
Stat→ DIST→ NORM→ InvN
Tail: central
Area: 0.95
σ: 1
μ:0
$xInv$: 1.96 → this is your z value

2- to estimate π

$$n = \frac{Z^2\pi(1-\pi)}{e^2}$$

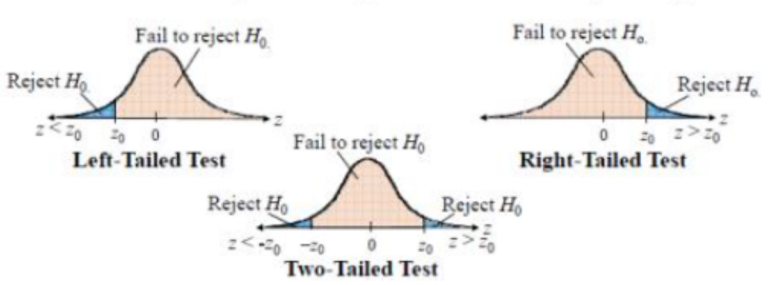
you will be given values %confidence (which you will use to find Z),e, and π
**if π isn't given, assume it is 0.50

to find Z follow the same steps for xInv on the left.

Hypothesis testing for 1-sample tests:

H_0 → null hypothesis example: $H_0: \mu = 368$
H_1 → alternative hypothesis example: $H_1: \mu \neq 368$

**the alternative hypothesis is the opposite of the null hypothesis
**if you reject the null hypothesis, you have proof that the alternative hypothesis is correct
**if you don't reject the null hypothesis, you have failed to prove the alternative hypothesis



Types of errors:

	Actual truth of H_0	
Decision	**H_0 is true**	**H_0 is false**
Do not reject H_0	Correct decision	Type II error
Reject H_0	Type I error	Correct decision

Type I error: occurs if the null hypothesis is rejected when it is true. P(Type I error) = α

Type II error: occurs if the null hypothesis is not rejected when it is false. P(Type II error) = β

Hypothesis testing Calculator steps:

Mean μ
1- If $\sigma$is known:
Stat → Test → z → (1-s)

2- 2- If $\sigma$is unknown:
Stat → Test → t → (1-s)

Proportion π
Stat → Test → z → (1-p)

Critical value summary

Critical values (z or dist-norm-InvN):

2-tail test : (Ha: not equal to)------> tail: central, area: confidence interval

left tail i.e (Ha: u < ##)----> tail: left, area: α

right tail test (Ha: u>##) ----> tail: right, area: α

Critical values (t or dist-t-Invt):

left tail i.e (Ha: u < ##)----> area: you confidence (ex: 1-α)

right tail test (Ha: u>##) ----> area: α

2-tail test : (Ha: not equal to)------> area: α /2

EXTRA NOTES: