Benjamin Walter **cve303**

Assignment Hypothesis_Testing_II due 05/06/2019 at 08:00pm EEST

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1. **(1 point)** `METUNCC/Statistics/Hyp_z_Beta.pg`

For the problems below, you may either enter a numeric answer (accurate to 3 significant digits), or the R code which generates the answer.
(Your answer will be checked by R.)

A population is sampled 76 times yielding sample mean $\bar{x} = 21.5$ and sample standard deviation $s = 6.3$. A similar population has mean $\mu_0 = 20$. You will run a one-tailed hypothesis test against
$H_0: \quad \mu = 20$
with $\alpha = 0.05$.

The z-score of sampled data is:
$z_{\bar{x}} =$ ______

The α cutoff value is:
$z_\alpha =$ ___
(Choose z_α so that it has the same sign as $z_{\bar{x}}$)

In this case, are we rejecting the null hypothesis?
Result:

- select
- `reject H_0`
- `fail to reject H_0`

In this case β and the power of the test are:
$\beta =$ __________
Power = __________

What probability is β giving?
$\beta = P\Big($

- select
- `reject H_0`
- `accept H_0`

| [select/`H_0 true`/`H_0 false`] $\Big)$

You may use the embedded R window below to check your code and perform computations.

Embedded R window.

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2. **(1 point)** `METUNCC/Statistics/Hyp_z_n.pg`

For the problems below, you may either enter a numeric answer (accurate to 3 significant digits), or the R code which generates the answer.
(Your answer will be checked by R.)

Preliminary analysis of a random variable X suggests that $\mu_A = 37.5$ and $s = 7.6$. You wish to do a one-tailed hypothesis test against
$H_0: \quad \mu = 36$
with $\alpha = 0.02$ and $\beta = 0.01$.

The α cutoff value is:
$z_\alpha =$ _____
(Don't worry about sign...)
The β cutoff value is:
$z_\beta =$ _____
(Don't worry about sign...)
In this case the necessary number of samples is
$n =$ ____________________
(Remember that n should be an integer!)

You may use the embedded R window below to check your code and perform computations.

Embedded R window.