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import math

mu=75

xbar=72

s=6

n=10

alpha=0.05

#Defining the population mean, sample mean, sample deviation, sample size and significance level.


Zc=1.96

#Taking the critical Z value for a two-tailed test at 5% significance level.


SE=s/math.sqrt(n)

#Calculating the standard error using s/root(n).


lower_CV=mu-Zc*SE

upper_CV=mu+Zc*SE

#Finding the lower and upper critical value range limits.


print("Critical Value Method Output")

print("Lower Bound=",round(lower_CV,2))

print("Upper Bound=",round(upper_CV,2))

#Displaying the critical range values.


if lower_CV<=xbar<=upper_CV:

    print("\nSample mean lies inside the critical range.")

    print("Conclusion=Fail to reject H0 (Institute claim is accepted)")

    #If xbar lies within the range then null hypothesis is accepted.

else:

    print("\nSample mean lies outside the critical range.")

    print("Conclusion=Reject H0 (Institute claim is not accepted)")

```

#If \bar{x} lies outside the range then null hypothesis is rejected.

Critical Value Method Output

Lower Bound= 71.28

Upper Bound= 78.72

Sample mean lies inside the critical range.

Conclusion=Fail to reject H_0 (Institute claim is accepted)