

STA 474 Practice Problems 3

1. Problem 9.76, page 476.
2. Problem 9.92, page 482.
3. For the hypothesis test $H_0 : \theta = \theta_0$ versus $H_a : \theta < \theta_0$, use the CLT to show that

$$\beta = P\left(Z \geq -z_\alpha + \frac{\theta_0 - \theta_a}{\sigma_{\hat{\theta}}}\right)$$

where $\theta_a < \theta_0$.

4. Refer to Problem 10.84, pages 539-540. Conduct the test

$$H_o : \frac{\sigma_1^2}{\sigma_2^2} = 10$$
$$H_a : \frac{\sigma_1^2}{\sigma_2^2} \neq 10$$

and state your conclusion in the context of the problem.

5. Problem 10.100, page 548.
6. Let Y_1, Y_2, \dots, Y_n denote a random sample from a normally distributed population with unknown mean μ and unknown standard deviation σ . Find the likelihood ratio test statistic for the test $H_o : \mu = \mu_o$ versus $H_a : \mu < \mu_o$.