**Hypothesis test for the population mean: Z test**

A manufacturer claims that the mean lifetime, http://www.phoenix.aleks.com/alekscgi/x/math2htgif.exe/M?%25nv8, of its light bulbs is http://www.phoenix.aleks.com/alekscgi/x/math2htgif.exe/M?77months. The standard deviation of these lifetimes is http://www.phoenix.aleks.com/alekscgi/x/math2htgif.exe/M?%3Bmonths. Ninety bulbs are selected at random, and their mean lifetime is found to be http://www.phoenix.aleks.com/alekscgi/x/math2htgif.exe/M?70months. Can we conclude, at the http://www.phoenix.aleks.com/alekscgi/x/math2htgif.exe/M?3%2D36[level of significance](http://www.phoenix.aleks.com/alekscgi/x/Isl.exe/1xPugJ2N2Jda2fH88q19f7TRNLuq4lRRHTUac0pYuYLR2MaC3dxB30S1jSypJ4w3zDBBf5a9yVUgF0GTDyNRw-UNYxxJcUuxsQggd1JXQ53sn-VPPujq?1ybTGuBdTNWc47FqjjVdlxhY3GFRnla5ty_Wvzl1gisEZJirgQw9Fltz65KbToOYTJd6U-nIAUm2nVA38xGmBnul7GsT9acAdwm0OQ2BcufJXM92IekWq_q), that the mean lifetime of light bulbs made by this manufacturer differs from http://www.phoenix.aleks.com/alekscgi/x/math2htgif.exe/M?77months?

Perform a [two-tailed test](http://www.phoenix.aleks.com/alekscgi/x/Isl.exe/1KN7t6rZq66LqIkajmBtEEG6iDWPVQY660XLFkcWkAV6qfH0gMNMgkyCDr9YzNgmSWIMEtHt2iXBlkRpxL16rJMZfKNlFspgRorB3hIJ1tUHMJj4HFRo?1epF1YLANn_1OW6kA54AVbN56hrT-oB6vesgZs7-H-9h5C4ehpMUZPhi2f8iuszJJn6_NcvvEqFNhmXkLcoR9YTNX1GWfKtc5TA3qBxSuFLqLGstN). Then fill in the table below.

Carry your intermediate computations to at least three decimal places, and round your responses as specified in the table.

The null hypothesis: Ho =

The alternative hypothesis: H1 =

The type of test statistic =

The value of the test statistic (round to at least 3 decimal places) =

The two critical values at the 0.05 level of significance (round to at least 3 decimal places) =

Can we conclude that the mean lifetime of the light bulbs made by this manufacturer differs from 44 months? \_\_\_\_\_\_\_