

Firstly we determine null and alternative hypotheses. Since the test is two-tailed we got such:

$$H_0: \mu = 35$$

$$H_1: \mu \neq 35$$

The next step of testing the claim is calculating test statistics. We use the formula:

$$z = \frac{\bar{x} - \mu_0}{\sigma_0/\sqrt{n}}$$

Test statistics:

$$z = \frac{30 - 35}{6/\sqrt{12}} = -2.88$$

Critical values of the two-tailed test is determined using the formula:

$$z_{\frac{\alpha}{2}}, z_{1-\frac{\alpha}{2}}$$

In our case $\alpha = 0.01$ and thus

$$z_{critical} = z_{\frac{0.01}{2}} = -2.57$$

Since $|z| > |z_{critical}|$ there is no enough evidence to conclude that $\mu \neq 35$.