

8-4 Mean σ known

n sample size

\bar{x} sample mean

μ population mean

σ population standard deviation

μ_x pop. mean of all sample means

p430

7. $H_0 : \mu = 210$
 $H_1 : \mu > 210$

$n = 40$ $\sigma = 54.5$
 $\bar{x} = 252.2$
 $\alpha = .05$

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

$z = \frac{252.2 - 210}{\frac{54.5}{\sqrt{40}}}$

$z = \frac{42.2}{8.617}$

$z = 4.897$

$z = 4.90$

P-value - method

$\alpha = .05$

$z = 4.90 \rightarrow .9999$

$1 - .9999 = .0001$

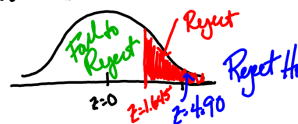
$.0001 \leq .05$

Reject H_0

The sample data support the claim that the sample is from a population of songs with a mean greater than 210 sec.

The results suggest that the advice of songs being no longer than 210 sec is not sound advice.

Traditional - Method



p406

$\alpha = .05 \rightarrow$ one-tailed test
 use 90% or .90

Critical Value or
 Z-score 1.645

9. $H_0: \mu = .8535$
 $H_1: \mu \neq .8535$

$\bar{x} = .8635$

$n = 19$

$\sigma = .0565$

$\alpha = .05$

$Z = \frac{\bar{x} - \mu}{\frac{\sigma}{\sqrt{n}}}$

$z = \frac{.8635 - .8535}{\frac{.0565}{\sqrt{19}}}$

$z = .77$

p-value

$\alpha = .05$

two-tailed

$\frac{\alpha}{2} = .025$

Looking up

$z = .77 \rightarrow .7794$

$1 - .7794$

$.2206$

$.2206 > .025$

Fail to Reject H_0

There is not sufficient evidence to warrant rejection of the claim that green M&M's have a mean weight of 0.8535. Yes, the green M&M's appear to have weights consistent with the package label.

