

3. $H_0: \mu = 400$
 $H_1: \mu > 400$

$n = 100$
 $\sigma = 80$
 $\alpha = .05$
 $\mu = 420$



④ $Z_{AR} = \text{INVNORM}(1-\alpha)$
 $= \text{INVNORM}(1-.05)$
 $Z_{AR} = 1.645$

⑤ $\bar{X}_R = \mu_0 + Z_{AR} \cdot \frac{\sigma}{\sqrt{n}}$
 $\bar{X}_R = 400 + 1.645 \cdot \frac{80}{\sqrt{100}}$

$\bar{X}_R = 413.16$

⑥ $Z_R = \frac{\bar{X}_R - \mu}{\frac{\sigma}{\sqrt{n}}}$

$Z_R = \frac{(413.16 - 420)}{\left(\frac{80}{\sqrt{100}}\right)}$

$Z_R = -0.86$

⑦ $\beta = \text{NORMALCDF}(-E99, -0.86)$

$\beta = .1949$

⑧ Power = $1 - \beta$
 $= 1 - .1949$
 $= .8051$

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