Sol

a) $n_1 = 37$

$n_2 = 37$

$\mu_1 = 32.19$

$\mu_2 = 31.68$

$s_1 = 4.34$

$s_2 = 4.56$

$RK = \{ z > z_\alpha \}$

$\alpha = 0.05 \Rightarrow z_\alpha = z_{0.05} = 1.645$

$$z = \frac{(\mu_1 - \mu_2) - 0}{\sqrt{\frac{s_1^2}{n_1} + \frac{s_2^2}{n_2}}} = 0.4927$$

Como $z < z_\alpha$, la hipótesis H_0 se acepta.

$H_0 : \mu_1 - \mu_2 = 0$

$H_a : \mu_1 - \mu_2 > 0$

b) $$z = \frac{(\mu_1 - \mu_2) - (\mu_1 - \mu_2)_0}{\sqrt{\frac{s_1^2}{n_1} + \frac{s_2^2}{n_2}}} \Rightarrow 1.645$$

$$(\mu_1 - \mu_2) > (\mu_1 - \mu_2)_0 + 1.645 \left(\sqrt{\frac{s_1^2}{n_1} + \frac{s_2^2}{n_2}} \right) =$$

$$= +1.645 \left(\sqrt{\frac{(4.34)^2}{37} + \frac{(4.56)^2}{37}} \right) = 1.702$$

$$\beta = p\left(\frac{(\mu_1 - \mu_2) - (\mu_1 - \mu_2)_a}{\sqrt{\frac{s_1^2}{n_1} + \frac{s_2^2}{n_2}}} \leq \frac{1.702 - 3}{\sqrt{\left(\frac{4.34^2}{37}\right) + \frac{(4.52)^2}{37}}} \right) = p(z \leq -1.259)$$

$A = 0.1038 = 0.8962$ $= 0.1056$