(#3) a) $H_0: \mu_x = \mu_y$ or $\mu_x - \mu_y = 0$

$H_a: \mu_x \neq \mu_y$ or $\mu_x - \mu_y \neq 0$

$$Z = \frac{\bar{x} - \bar{y}}{\sqrt{\frac{s_x^2}{m} + \frac{s_y^2}{n}}} = \frac{2.0 - 1.7}{\sqrt{\frac{0.6^2}{120} + \frac{0.7^2}{34}}} = \frac{0.3}{0.13195} = 2.27$$

$$Z_{\frac{\alpha}{2}} = Z_{0.025} = 1.96$$

Since $Z > Z_{\frac{\alpha}{2}}$, so we reject H_0, that means there is a diff. in the means of the two groups.

b) The samples were drawn randomly from a normally distributed population and independent.

c) p-value $= p(|z| > 2.27) = 2p(z > 2.27)$

we know p-value when $p(|z| > 1.96) = 0.05$

p-value when $p(|z| > 2.33) = 0.02$

and we can see 2.27 lies between 1.96 and 2.33.

The p-value for this test would be reported as

$$0.02 < \text{p-value} < 0.05$$

Since p-value $< \alpha \Rightarrow$ reject H_0, which confirms the part a).