Ted Johnson

① (a) $T_{obs} = \frac{124-110}{10\sqrt{10}} \approx 1.265$

$t_{v=7, \alpha=\frac{0.01}{2}} = 3.25$

$-t_{v,\alpha} < T_{obs} < t_{v,\alpha}$ ✓

∴ Fail to reject H_0

(b) $T_{obs} = \frac{0.6-0.5}{0.2\sqrt{8}} \approx 1.414$

$t_{v=7, \alpha=\frac{0.05}{2}} = 2.365$

$-t_{v,\alpha} < T_{obs} < t_{v,\alpha}$ ✓

∴ Fail to reject H_0

(c) $T_{obs} = \frac{33.4-30}{6.8\sqrt{25}} = 2.5$

$t_{v=24, \alpha=0.1} = 1.318$

$T_{obs} < t_{v,\alpha}$ ✗

∴ Reject the H_0 and accept the H_A

(a) $Y \sim N(55, 100)$ $z = \frac{70-55}{\sqrt{100}} = 1.5$

∴ $P(Y > 70) = 1 - 0.933 = 0.067$

(b) $P(\text{Exactly one student}) = 0.067 \times (1 - 0.067)^9 = 0.036$

(c)

z	$= \frac{60-55}{10/\sqrt{10}} =$	1.58

∴ $P(\bar{X} > 70) = 1 - 0.943 = 0.057$