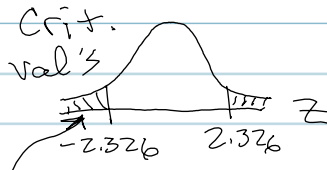
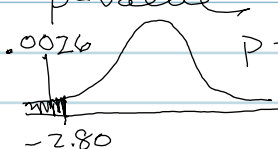


#7 $n=51$, $\bar{x}=6.11$, $\sigma=2.27$, $\alpha=.02$, $n>30$ ✓
 $H_0: \mu=7$, $H_1: \mu \neq 7$. Test: $z = \frac{\bar{x}-\mu}{\sigma/\sqrt{n}} = \frac{6.11-7}{2.27/\sqrt{51}} = -2.80$

Crit. val's  z
 Test stat -2.80

p-value  $p\text{-value} = 2(0.0026)$
 $= .0052 < .02 = \alpha$
 Reject H_0 , Support H_a .

The data support the claim that the mean liter size is not 7.

#8 $\bar{x}=2.33$, $n=10$, $s=2.27$, $\alpha=.06$, pop. is normal ✓
 $H_0: \mu=3$, $H_1: \mu < 3$. $t = \frac{\bar{x}-\mu}{s/\sqrt{n}} = \frac{2.33-3}{2.27/\sqrt{10}} = -0.93$

Crit. value  t
 $\alpha=.06$

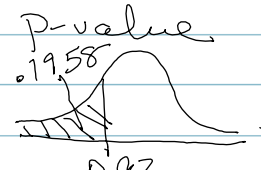
p-value  t
 Test Stat -0.93

Table A3
 df $\rightarrow \frac{n-1}{=10-1} = 9$
 T.S. $\downarrow$
 $-0.9 \rightarrow .1958$

$P\text{-val} = .1958 > \alpha \rightarrow$ Reject H_0

$\rightarrow$ Support H_1 : The data support the claim that the mean sleep gained is less than 3 hours.

#9 $d=x-y \rightarrow 0.2, 2.4, 1.3, -1.1, 0, 1.0, 1.8, 0.8, 4.6, 1.4$
 $s_d=1.54$, $\bar{d}=1.24$, $n=10$, $\alpha=.01$, normal ✓
 $H_a: \mu_1 > \mu_2$, $H_0: \mu_1 = \mu_2$ ($\mu_d = \mu_1 - \mu_2 = 0$)

$$t = \frac{\bar{d}-\mu_d}{s_d/\sqrt{n}} = \frac{1.24-0}{1.54/\sqrt{10}} = 2.55 \approx 2.6$$

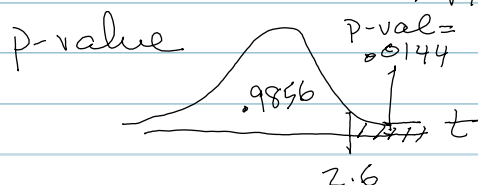
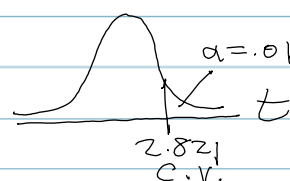


Table A3
 df $\rightarrow 9$
 T.S. $\downarrow$
 $2.6 \rightarrow .0144$



$p\text{-val} > \alpha$
 Fail to reject H_0
 Don't support H_1 .

The data do not support the claim that the mean sleep gain is greater for Hyoscine.