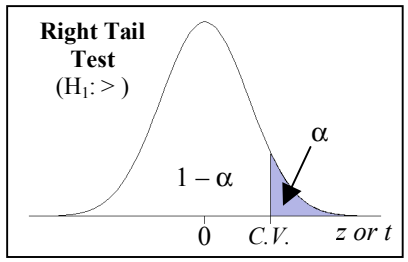
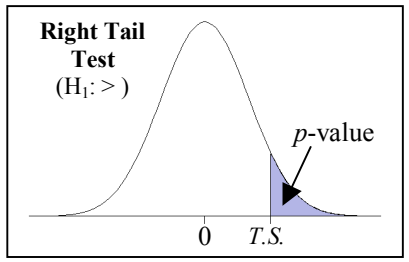
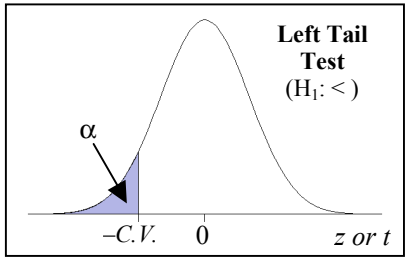
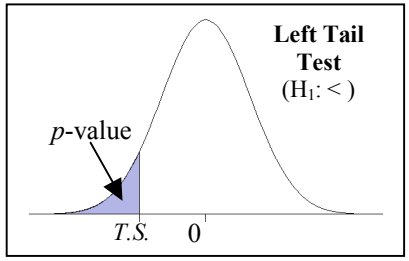
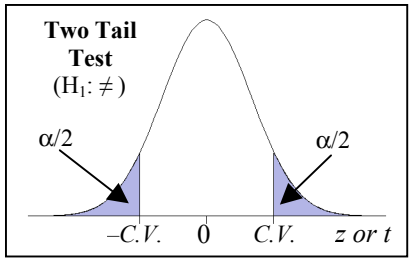
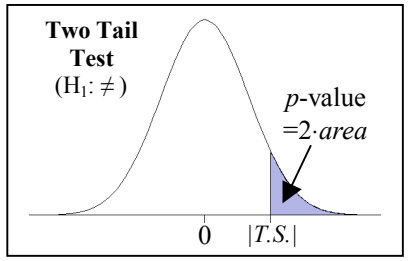
Single Sample Hypothesis Test Summary

Type of Test	(1) Gather Data & Verify Requirements	(2) Level of Signif-icance	(3) Set up H_0 (null hypothesis) & H_1 (alternative hypothesis)	(4) Compute the Test Statistic (T.S.)	(5) Look up the critical value (C.V.) in Table A2 Pick *one* According to Type of Test	(6) Look up the *p*-value *z*: Table A1 *t*: Table A3 Pick *one* According to Type of Test	(7) Make a Conclusion
Proportion p	$\hat{p} = x/n$, n. Requirements: $n \cdot p \geq 5$ $n \cdot q \geq 5$ (check in step 3)	α	$H_0 : p = value$ H_1 is one of: $p > value$ $p < value$ $p \neq value$ (choose only one)	T.S.: $z = \dfrac{\hat{p} - p}{\sqrt{pq/n}}$			In each case, whenever the test statistic (T.S.) lies in a tail beyond a critical value (C.V.), we reject the null hypothesis in favor of the alternative (in this case a statement of support is *strong*). Otherwise, we fail to reject the null hypothesis (in this case a statement of support is *weak*).
Mean μ σ known	$\bar{x}$, σ, n Requirement: $n > 30$ or population is normal.	α	$H_0 : \mu = value$ H_1 is one of: $\mu > value$ $\mu < value$ $\mu \neq value$ (choose only one)	T.S.: $z = \dfrac{\bar{x} - \mu}{\sigma/\sqrt{n}}$			
Mean μ σ unknown	$\bar{x}$, s, n Requirement: $n > 30$ or population is normal.	α	$H_0 : \mu = value$ H_1 is one of: $\mu > value$ $\mu < value$ $\mu \neq value$ (choose only one)	T.S.: $t = \dfrac{\bar{x} - \mu}{s/\sqrt{n}}$			

Looking up critical values (C.V.) in Table A2

d.f.	α One/Two Tail Applications					
			α			
***n* – 1**			*t C.V.*			
Large(z)			*z C.V.*			

Computing *p*-values

1. Look up area to left of the T.S. in Table A1 or A3
   For a 2-tail test, use the absolute value of the T.S.

z distribution (Tab. A1)

z		*1/100th's place*	
T.S.		*Area*	

t distribution (Tab. A3)

t		*d.f.* = *n* – *1*	
T.S.		*Area*	

Computing *p*-values *Continued*

2. Compute the *p*-value using the area found in step 1.
   a. For a right-tail test, *p*-value = 1 – *area in table*.
   b. For a left-tail test, *p*-value = *area in table*.
   c. For a 2 tail test, *p*-value = 2·(1 – *area in table*).