COMM 215: Business Statistics –
Solutions to Practice Problems 2: **Corrections F2011**

Sampling Distribution

2. $P\left[\frac{(20-22)}{0.778} \le z \le \frac{(23-22)}{0.778}\right] = P[-2.57 \le z \le \mathbf{1.29}] = 0.8964 \leftarrow = (0.4015 + 0.4949)$

Estimation and Hypothesis Testing

2.

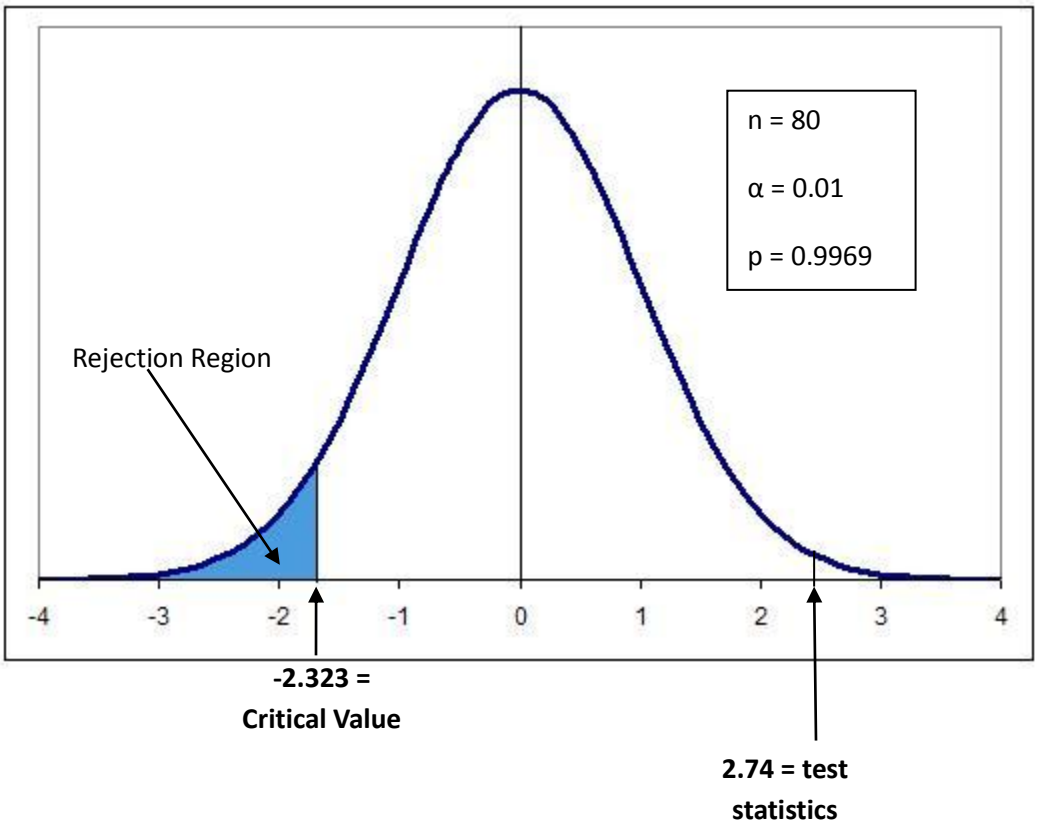
c. since the population standard deviation is not known, t-statistic should be used. The answer then is (108.57, 111. 43)

6.

a. H_0: $\mu \le 5$

7.

H_0: $p \ge 0.04$
Ha: $p < 0.04$
since 2.74 > -2.3, DO NOT reject Ho



9. n = 25, but since **σ is known**, use the Z-stat

10. there are **2** acceptable solutions

$$n = \frac{(\mathbf{2.580})^2(0.5 * 0.5)}{(0.02)^2} = 4160.25 \rightarrow \mathbf{4161}$$

or

$$n = \frac{(\mathbf{2.575})^2(0.5 * 0.5)}{(0.02)^2} = 4144.14 \rightarrow \mathbf{4145}$$

11.

b.

$$0.07 \pm 1.96\sqrt{\frac{(0.07)(0.93)}{100}} \rightarrow 0.07 \pm \mathbf{0.0482} \rightarrow (0.0218,0.1182) \rightarrow 95\%\ confidence$$

12.

b. H_0: $\mu \leq 25$

13.

a) since the population standard deviation is not known, t-statistic should be used. The answer is then (227.43, 248.23)

15. Since the p* values are not given, we make a conservative estimate and let p*=.5

18.

b. The sample size should be increased **to** 152.47→**153**
an increase of 144 ←(153 – 9)

19.

a. H_0: $\mu \geq 2.8$ and since population standard deviation is unknown, t-statistic is used

Chi-Square tests

#8part a

number of years of experience	found JOB	no job	total count
0	20	32	52
1	8	8	16
>1	10	2	12
total count	38	42	80

Simple Linear Regression

1.

d. $\hat{y} = \mathbf{1.423537} + 0.530585(5) = 4.076462$

3.

b. if P/2 = 0.0005 → t = 4.587
if P/2 = 0.0010 → t = 4.144
0.0010 < p < 0.0020

Multiple Regression

1.

b. Alternative solution
SSE = SST – SSR = 4166-939=3227
$\left.\begin{matrix} n = 40 \\ p = 3 \end{matrix}\right\} n - (p+1) = 36$
α = 0.05

$$F = \frac{(SST - SSE)/p}{SSE/[n-(p+1)]} = \frac{MSR}{MSE} \rightarrow F = \frac{(4166-3227)/3}{3227/[40-(3+1)]} = \frac{313}{89.64} = 3.49$$