I. Draw & Label, then find the critical value.

1) $C = 85\%$ 2) $C = 70\%$ 3) $C = 84\%$

II. Use the standard deviations and sample size with the given information to find the margin of error.

4) $C = 90\%$
$\sigma = 2.5$
$n = 50$

5) $C = 96\%$
$\sigma = 20$
$n = 45$

6) $C = 99\%$
$\sigma = 18.3$
$n = 75$

7) $C = 85\%$
$\sigma = 13.5$
$n = 65$

8) $C = 95\%$
$\sigma = 15$
$n = 30$
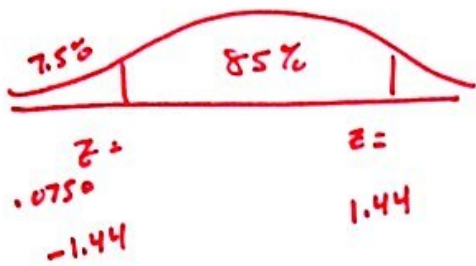
9) $C = 92\%$
$\sigma = 5.4$
$n = 40$

10) $C = 94\%$
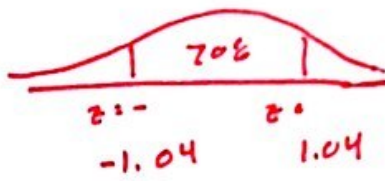$\sigma = 12$
$n = 35$

11) $C = 95\%$
$\sigma = 10$
$n = 38$

12) $C = 95\%$
$\sigma = 15$
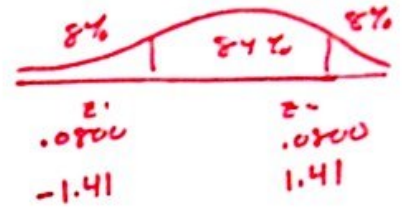$n = 40$

I. Draw & Label, then find the critical values.

1) C = 85%

7.5%   85%

$z = .0750$
-1.44

$z = 1.44$

2) C = 70%

70%

$z = -1.04$ $z = 1.04$

3) C = 84%

8%   84%   8%

$z = .0800$ $z = .0800$
-1.41 1.41

II. Use the standard deviation and sample size with the given information to find the margin of error.

4) C = 90% $z = -1.645$
                 $= 1.645$
$\sigma = 2.5$
$n = 50$

$E = -1.645 \cdot \dfrac{2.5}{\sqrt{50}} = -.58$

$E = 1.645 \cdot \dfrac{2.5}{\sqrt{50}} = .58$

5) C = 96% $z_c = \pm 2.05$
$\sigma = 20$
$n = 45$

$E = -2.05 \cdot \dfrac{20}{\sqrt{45}} = -6.11$

$E = 2.05 \cdot \dfrac{20}{\sqrt{45}} = 6.11$

6) C = 99% $z_c = \pm 2.575$
$\sigma = 18.3$
$n = 75$

$E = 2.575 \cdot \dfrac{18.3}{\sqrt{75}} = -5.44$

$E = 2.575 \cdot \dfrac{18.3}{\sqrt{75}} = 5.44$

7) C = 85% $z_c = \pm 1.44$
$\sigma = 13.5$
$n = 65$

$E = 1.44 \cdot \dfrac{13.5}{65} = 2.41$

$E = -1.44 \cdot \dfrac{13.5}{65} = -2.41$

8) C = 95% $z_c = \pm 1.96$
$\sigma = 15$
$n = 30$

$E = 1.96 \cdot \dfrac{15}{\sqrt{30}} = 5.37$

$E = -1.96 \cdot \dfrac{15}{\sqrt{30}} = -5.37$

9) C = 92% $z_c = \pm 1.75$
$\sigma = 5.4$
$n = 40$

$E = 1.75 \cdot \dfrac{5.4}{\sqrt{40}} = 1.49$

$E = -1.75 \cdot \dfrac{5.4}{\sqrt{40}} = -1.49$

10) C = 94% $z_c = \pm 1.88$
$\sigma = 12$
$n = 35$

$E = 1.88 \cdot \dfrac{12}{\sqrt{35}} = 3.81$

$E = -1.88 \cdot \dfrac{12}{\sqrt{35}} = -3.81$

11) C = 95% $z_c = \pm 1.96$
$\sigma = 10$
$n = 38$

$E = 1.96 \cdot \dfrac{10}{\sqrt{38}} = 3.18$

$E = -1.96 \cdot \dfrac{10}{\sqrt{38}} = -3.18$

12) C = 95% $z_c = \pm 1.96$
$\sigma = 15$
$n = 40$

$E = 1.96 \cdot \dfrac{15}{\sqrt{40}} = 4.65$

$E = -1.96 \cdot \dfrac{15}{\sqrt{40}} = -4.65$

Name_____

MULTIPLE CHOICE. Choose the one alternative that best completes the statement or answers the question. Provide an appropriate response.

1) Find the critical value z_c that corresponds to a 94% confidence level.

2) Determine the sampling error if the grade point averages for 10 randomly selected students from a class of 125 students has a mean of $\bar{x}$ = 2.8. Assume the grade point average of the 125 students has a mean of $\mu = 3.5$.

3) A random sample of 120 students has a test score average with a standard deviation of 11.4. Find the margin of error.

4) A random sample of 150 students has a grade point average with a standard deviation of 0.78. Find the margin of error if c = 0.98.

5) A random sample of 40 students has a mean annual earnings of $3120 and a standard deviation of $677. Find the margin of error if c = 0.95.

6) A random sample of 150 students has a grade point average with a mean of 2.86 and with a standard deviation of 0.78. Construct the confidence interval for the population mean, μ, if c = 0.98.

7) A random sample of 40 students has a test score with $\bar{x}$ = 81.5 and s = 10.2. Construct the confidence interval for the population mean, μ if c = 0.90.

8) A random sample of 40 students has a mean annual earnings of $3120 and a standard deviation of $677. Construct the confidence interval for the population mean, μ if c = 0.95.

9) A random sample of 56 fluorescent light bulbs has a mean life of 645 hours with a standard deviation of 31 hours. Construct a 95% confidence interval for the population mean.

10) A group of 49 randomly selected students has a mean age of 22.4 years with a standard deviation of 3.8. Construct a 98% confidence interval for the population mean.

11) A group of 40 bowlers showed that their average score was 192 with a standard deviation of 8. Find the 95% confidence interval of the mean score of all bowlers.

SHORT ANSWER. Write the word or phrase that best completes each statement or answers the question.

12) The numbers of advertisements seen or heard in one week for 30 randomly selected people in the United States are listed below. Construct a 95% confidence interval for the true mean number of advertisements.

598	494	441	595	728	690	684	486	735	808
481	298	135	846	764	317	649	732	582	677
734	588	590	540	673	727	545	486	702	703

13) The number of wins in a season for 32 randomly selected professional football teams are listed below. Construct a 90% confidence interval for the true mean number of wins in a season.

9	9	9	8	10	9	7	2
11	10	6	4	11	9	8	8
12	10	7	5	12	6	4	3
12	9	9	7	10	7	7	5