1. Z-Interval Stats

$\sigma = 18$
$\bar{x} = 220$
$n = 500$
C-level $= .99$

$(217.93, 222.07)$

2. Z Interval Stats

$\sigma = 4.2$
$\bar{x} = 11$
$n = 50$
C-level $= .92$

$(9.9601, 12.04)$

3.
a. $\dfrac{.500 + .200}{2} = .35$

b. $\dfrac{61.3 + 58.7}{2} = 60$

4. 1 Prop Z Int.

$X = 135$
$n = 420,095$
C-level : $.95$

$(2.7 \times 10^{-4}, 3.8 \times 10^{-4})$

vs.

$(.00027, .00038)$ or $(.027\%, .038\%)$

contains the background rate of $.034\%$ So we conclude
There is no difference.

5. Z-Interval Stats

$\sigma = 68$
$\bar{x} = 677$
$n = 50$
C-level $= .95$

$(658.15, 695.85)$
We are 95% Certain that the true mean population
FICO Score is between 658 and 696.

6. $n > \left(\dfrac{1.96 * 68}{3}\right)^2 \Rightarrow 1974$

7. 1PropZInt

$\bar{X} = .426 \times 1442 \Rightarrow 614$ (round to integer)

$n = 1442$

$C\text{-level} = .95$

$(.40028, .45132)$

We are 95% confident that the true proportion of people who think police are too violent is between 40% and 45%.

8. $n > p(1-p)\left(\dfrac{1.96}{.02}\right)^2 \Rightarrow 2349$

$\underset{.426}{\uparrow}$

9. $n > \left(\dfrac{1.96 * .7}{.01}\right)^2 \Rightarrow 18,824$

10. enter data into L1

T-Interval · Data

List: L1

Freq: 1

C-level: = .95

$(-.4705, 3.5472)$

(lead can't be negative)

So $< 3.5472 \, \mu g/m^3$

11. $\dfrac{7.2 + 5.8}{2} = \dfrac{13.0}{2} = 6.50 \qquad 7.2 - 6.5 = .7 = $ Margin of error

$n = \left(\dfrac{1.96 * 1.9}{.7}\right)^2 = 28.$

12. $\dfrac{.481 + .413}{2} = .447$ pt. est. $\qquad .447(1 - .447)\left(\dfrac{1.645}{.034}\right)^2 = 579$

$\dfrac{.481 - .413}{2} = .034$

13. T-Interval Stats

$\bar{X} = 48$
$S = 14$
$n = 61$
C-level: .95

(44.414, 51.586)

We are 95% sure that Alzheimer's patients
true mean time in Stage IV sleep is between
44.4 min and 51.6 min.

14. T-Interval

$\bar{X} = 58$
$S = 3.2$
$n = 30$
C-level = .99

(56.39, 59.61)

this does not contain 65 so we think
they are different populations

15. T-Interval Data   enter data in L1

List: L1
Freq: 1
C-level = .95

(8.5527, 13.281)

the true mean study time of psychology
Students is between 8.5 hours and 13.3 hrs.
at 95% confidence.

16. T-Interval Stats

$\bar{X} = 180$
$S = 30$
$n = 1000$
C-level = .95

(178.14, 181.86)

by comparison Z-Interval also gives
(178.14, 181.86)