Confidence Intervals and H-Testing - SOLUTIONS

1 Confidence Intervals

1. $362.53 \leq \mu \leq 387.47$
2. $23.92 \leq \mu \leq 26.08$
3. $38.32 \leq \mu \leq 41.68$
4. $3.2 \leq \mu \leq 4.8$
5. $14518 \leq \mu \leq 19065$
6. $.306 \leq p \leq .354$
7. $.223 \leq p \leq .277$
8. $.514 \leq p \leq .654$
9. $.354 \leq p \leq .396$
10. $.3082 \leq p \leq .3918$
11. $.262 \leq p \leq .318$

2 Hypothesis Testing

1. $H_0 : p = .3$[claim]
   $H_a : p \neq .3$
   $.322 \leq p \leq .458$
   Reject H_0, reject the radio station's claim.
2. $H_0 : p = .78$[claim]
   $H_a : p \neq .78$
   $.723 \leq p \leq .757$
   Reject H_0, reject the claim made by the drug company.
3. $H_0 : p = .9$[claim]
   $H_a : p \neq .9$
   $.85 \leq p \leq .91$
   Do not reject H_0, do not reject the CEO's claim.
4. $H_0 : p = .4$
   $H_a : p \neq .4$[claim]
   $.46 \leq p \leq .5$
   Reject H_0, support the magazine's claim.

5. $H_0 : p = .167$
   $H_a : p \neq .167$[claim]
   $.165 \leq p \leq .335$
   Do not reject H_0, do not support the claim that die is biased.

6. $H_0 : p = .222$
   $H_a : p \neq .222$[claim]
   $.422 \leq p \leq .698$
   Reject H_0, support the managers claim that the player is somehow cheating.

7. $H_0 : \mu = 65$[claim]
   $H_a : \mu \neq 65$
   $58.53 \leq \mu \leq 65.47$
   $z = -1.69$
   $p = .091$
   Do not reject H_0, do not reject claim by travel company

8. $H_0 : \mu = 12.50$[claim]
   $H_a : \mu \neq 12.50$
   $9.87 \leq \mu \leq 11.13$
   $z = -6.26$
   $p = 0$
   Reject H_0, reject director's claim.

9. $H_0 : \mu = 20000$[claim]
   $H_a : \mu \neq 20000$
   $14518 \leq \mu \leq 19065$
   $z = -2.77$
   $p = .0056$
   Reject H_0, reject reporter's claim.

10. $H_0 : \mu = 70000$[claim]
    $H_a : \mu \neq 70000$
    $60615 \leq \mu \leq 65385$
    $z = -5.75$
    $p = 0$
    Reject H_0, reject tyre manufacturer's claim.

11. $H_0 : \mu = 65$[claim]
    $H_a : \mu \neq 65$
    $57.29 \leq \mu \leq 67.58$
    $z = -.98$
    $p = .327$
    Do not reject H_0, do not reject casino owner's claim.

12. $H_0 : \mu = 60$[claim]
    $H_a : \mu \neq 60$
    $37.28 \leq \mu \leq 42.72$
    $z = -14.39$

$p = 0$
Reject H_0, reject politician's claim.

13. $H_0 : \mu = 7.1$
$H_a : \mu \neq 7.1$[claim]
$7.14 \leq \mu \leq 7.86$
$z = 2.18$
$p = .0292$
Reject H_0, support the doctor's claim that average weight has increased.

14. $H_0 : \mu = 800$[claim]
$H_a : \mu \neq 800$
$733.64 \leq \mu \leq 806.36$
$z = -1.62$
$p = .105$
Do not reject H_0, do not reject psychologist's claim.

15. $H_0 : \mu = 100$
$H_a : \mu \neq 100$[claim]
$103.4 \leq \mu \leq 116.62$
$z = 2.96$
$p = .003$
Reject H_0, support principal's claim.