

Problem Set 2 Answers
[30 points total]

Chapter 5

- #4. a. $X(55) = Z(.50)$ $X(60) = Z(1.00)$ $X(75) = Z(2.50)$
 $X(45) = Z(-.50)$ $X(30) = Z(-2.00)$ $X(35) = Z(-1.50)$
- b. $X(60) = Z(1.00)$ $X(58) = Z(.80)$ $X(65) = Z(1.50)$
 $X(45) = Z(-.50)$ $X(47) = Z(-.30)$ $X(35) = Z(-1.50)$

[.5 POINTS EACH; 6 total]

#16. $s = 10$ **[1 POINT]**

#18. $\mu = 82$ and $\sigma = 3$; the difference between the two scores is 9 points, which is 3 SDs. **[2 POINTS]**

Chapter 6

- #8. a. $p(z > -1.00) = .8413$
b. $p(z > -.80) = .7881$
c. $p(z < .25) = .5987$
d. $p(z < -1.25) = .8944$ **[.5 POINTS EACH; 2 total]**

- #22. a. $z = .80$, $p = .2119$ **[1 POINT]**
b. $z = -2.20$, $p = .0139$ **[1 POINT]**
c. $z = .84$, $X = \$176$ or more **[1 POINT]**

Chapter 7

- #2. a. The expected value is 50 and the standard error is 5. **[1 POINT]**
b. The expected value is 50 and the standard error is 2. **[1 POINT]**

Chapter 8

- #8. a. IV is presence or absence of the hormone; DV is weight at 10 weeks of age.
b. the null hypothesis states that the growth hormone will have no effect on the weight of the rats at 10 weeks of age.
c. $H_0: \mu = 950$ $H_1: \mu \neq 950$
d. The critical region consists of z-score values beyond 1.96 or -1.96 in a normal distribution.
e. For this sample $\sigma_M = 6$ and $z = 4.00$
f. Reject H_0 and conclude that the hormone has a significant effect on weight.
[1 POINT EACH; 6 total]
- #14. a. With $\sigma = 10$, the standard error is 2 and $z = -5/2 = -2.50$; Reject H_0 .
b. With $\sigma = 20$, the standard error is 4 and $z = -5/4 = -1.25$; Fail to reject H_0 .
c. With $\sigma = 10$, Cohen's $d = -5/10 = -.50$. With $\sigma = 20$, Cohen's $d = -5/20 = -.25$.
d. Larger variability reduces the likelihood of rejecting H_0 and reduces the effect size.
[2 POINTS EACH; 8 total]