

# PSYCHOLOGY B5

## HOMEWORK SIX: HYPOTHESIS TESTING: Z-TEST

**BAKERSFIELD  
COLLEGE**

Name:

1. What z-score identifies each of the following locations in a distribution of z-scores?
  - a. Above the mean by 2 standard deviations.
  - b. Below the mean by  $\frac{1}{2}$  standard deviation.
  - c. Above the mean by  $\frac{1}{4}$  standard deviation.
  - d. Below the mean by 3 standard deviations.
  
2. A sample consists of the following scores: 1, 9, 8, 5, 7
  - a. Calculate the  $S_x$  and the  $\bar{X}$

b. Find the z-score for each raw score (X) in the sample

X	z-score (equation)	z-score	Proportion	
			Above	Below
1				
5				
7				
8				
9				

3. A researcher predicts that a treatment will lower scores. If this researcher uses a one-tailed test, will the critical region be in the right or left hand tail of the distribution? Draw and label the distribution.
4. Explain the following (*in complete sentences*):
  - a. When it is appropriate to use a one-tailed test.
  - b. When it is appropriate to use a two-tailed test.
5. A researcher predicts that showing a certain film will change people's attitudes toward alcohol. The researchers then randomly select 36 people, show them the film, and give them an attitude questionnaire. The mean score on the attitude questionnaire for this **sample** of people is 70. In general, the average score for people on this test is  $\mu = 75$ , with a standard deviation of  $\sigma_x = 12.0$  (assume the alpha level = .05). Follow the six of the eight steps of hypothesis testing to test the effect of the movie on people's attitudes.

## Step

- I. **Research question:**
- II. **Statistical test:**
- III. **Hypotheses:** (Statement):  $H_a$ :  
  
(Statistical):  $H_a$ :

(Statement):  $H_0$ :

(Statistical):  $H_0$ :

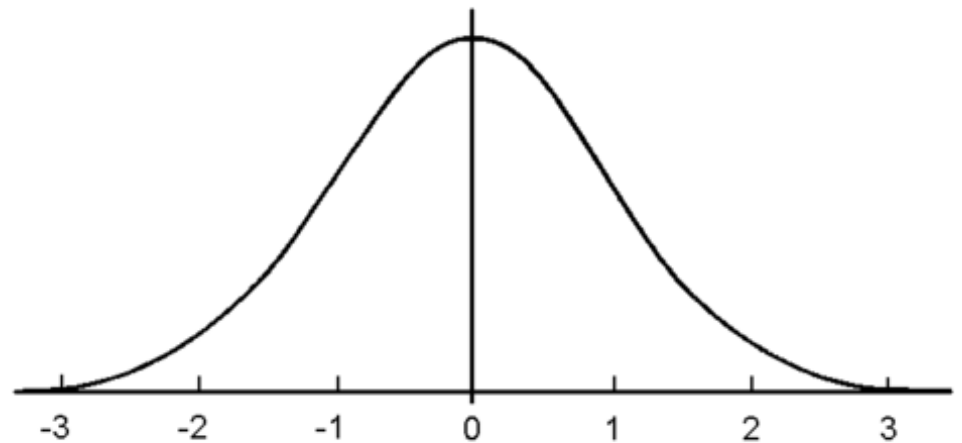
IV. **Alpha and Critical Value:**    Number of tails?

Alpha:  $\alpha$ :

Critical Value:  $z_{crit}$ :

V. **Obtained value:**             $\mu$ :     $\sigma_x$ :

VI. **Make a decision:**



6. You hypothesize that children will be more relaxed when they are tested with their mothers present. On a standard test, the national average relaxation score of children tested without their mothers present is 44 ( $\sigma_x = 6.32$ ). You test the relaxation of children when their mothers are present. Follow the six of the eight steps of hypothesis testing to test the effect of having mothers present effects children's scores.

50	52	68	28	66	59	44	36	$\frac{n}{X} =$
32	26	42	40	44	42	68	60	

### Step

I. **Research question:**

II. **Statistical test:**

III. **Hypotheses:** (Statement):  $H_a$ :

(Statistical):  $H_a$ :

(Statement):  $H_0$ :

(Statistical):  $H_0$ :

IV. **Alpha and Critical Value:**    Number of tails?

Alpha:  $\alpha$ :

Critical Value:  $z_{crit}$ :

V. **Obtained value:**                     $\mu$ :         $\sigma_x$ :

VI. **Make a decision:**