

Name:

Statistics

Date:

Practice Quiz 7-C

1. Find the critical value for each of the following tests. Label each value as z_0 or t_0 .

Use the table. Use the bottom row when finding z values.

a) two-tailed, $n = 30$, $s = 24$

b) right-tailed, $\hat{p} = .224$, $n = 40$

2. In Gallup's most recent poll on abortion (May 2025), 13% of respondents said abortion should be illegal in all circumstances. Ava surveys people in Scotts Valley to see if this proportion is different locally.

a) Which tail(s) is she using?

State the direction for which she has justification to make a prediction. Choose two tails if there is reasonable justification for both directions.

b) What is the alternate hypothesis?

What claim about the population is she trying to establish? This must match your answer to (a).

c) What is the null hypothesis?

State the complement (which is not necessarily the "opposite") of the alternate hypothesis.

d) Find the critical value, label it on the normal curve, and shade the critical region.

Depending on the type of test and the tails, use $z_0 = 1.64$, $z_0 = -1.64$, $z_0 = \pm 1.96$, or a value from the t table, to shade a 5% tail or two 2.5% tails.

e) Out of 218 Scotts Valley residents in her survey, 13 say abortion should be illegal in all circumstances.

Use the z formula for proportions.

f) Does she reject the null hypothesis?

Is $p < .05$?

g) State the critical value for $\alpha = .01$, and use it to determine whether or not p is less than .01.

Depending on the type of test and the tails, use $z_0 = 2.33$, $z_0 = -2.33$, $z_0 = \pm 2.58$, or a value from the t table. P is less than .01 if the calculated z value, above, reaches this critical value.

h) State the critical value for $\alpha = .001$, and use it to determine whether or not p is less than .001.

Depending on the type of test and the tails, use $z_0 = 3.09$, $z_0 = -3.09$, $z_0 = \pm 3.29$, or a value from the t table. P is less than .001 if the calculated z value, above, reaches this critical value.

i) State the conclusion, including the z score and a p value range.

She either can or cannot make a claim about the population. If she makes a claim, the direction of the claim must be clearly stated and must match the alternate hypothesis. Either way, follow with the calculated value of z and one of the following: $p > .05$, $p < .05$, $p < .01$, or $p < .001$.

3. The mean birthweight of babies in the US is 3400 grams. Bryce is testing if babies born near coal-burning factories have lower birth weights. A random sample of 51 babies born near coal-burning factories had a mean of $\bar{x} = 3258$ grams with $s = 430$ grams. State his conclusion, followed by $t(df)$ and a p value range.

Follow the above process, using the t formula for means.

