Names: **Statistics**

Date: **Practice Quiz 8-G**

1. For each of the following research questions, a reason has been given why the identified type of test would not work. State a type of test that would work.

a) Do shoes last longer the more they cost? [χ^2 test of independence]
The amount of time shoes last and the amount of money they cost are both continuous.

b) Do cats live longer than dogs on average? [*t* test of a mean difference]
This is not a within-participants design, because each cat is not also a dog.

c) Can personality type be predicted by astrological sign? [*F* test: ANOVA]
Astrological sign is nonnumerical and cannot be averaged.

d) Are speeds on 880 more consistent than speeds on 680? [*t* test of two means]
Consistency is not measuring averages.

e) Are earthquakes more common in summer or in winter? [*z* test of two proportions]
There is only one variable (season).

f) Are spring or summer weddings more likely to be held outdoors? [*z* test of a proportion]
There are two variables (season and place).

g) Is Dominic's 20-sided die biased to roll certain numbers more than others? [*F* test: ANOVA]
We aren't averaging the outcomes, but rather finding how often each outcome occurs.

h) Do redwood trees have more yearly growth the more fog there is? [*t* test of a mean difference]
Amount of fog is a continuous variable, rather than being categorical.

i) Is people's body temperature below 98.6° on average when they wake up? [*t* test of a mean difference]
There is only one variable (body temperature).

j) Do women spend more time helping their kids with homework than their husbands do? [*t* test of two means]
This is a within-participant design, where each "participant" is a husband-wife pair.

k) Is there a difference in average daily high temperature between San Diego, Albuquerque, and Dallas? [χ^2 goodness of fit]
We are averaging the temperatures, not counting how often they occur.

l) Do heights of oak trees grown in coastal climates vary more than heights of oak trees grown in inland climates? [*t* test of two means]
We aren't looking at how big they are on average, but rather how much they vary.