1. Using the teacher's rating data, is there an association between native (native English speakers) and the number of credits taught? What test will you use?

1 / 1 point

○ ANOVA

○ Z-test

○ T-test

◉ Chi-Square Test for Association

✓ **Correct**
Correct!

2. If I wanted to test for association using chi-square test, whether there is an association between gender (Male or Female) and tenure-ship (tenured or not tenured), what will be my degree of freedom?

1 / 1 point

1

✓ **Correct**
Formula for degree of freedom for chi-square if $(r-1)*(c-1)$

3. Consider a normally distributed data set with mean $\mu = 63.18$ inches and standard deviation $\sigma = 13.27$ inches. What is the z-score when $x = 91.54$ inches? (To 3 decimal places)

1 / 1 point

2.137

✓ **Correct**

4.

1 / 1 point

Phone Brand	A	B	C	D
	24	26	18	27
	19	24	18	24
	22	20	20	22
	25	18	23	24
Mean	22.5	21.75	19.75	24.25
Std. dev.	2.64	10.91	2.36	4.25

Battery life of smartphones is of great concern to customers. A consumer group tested four brands of smartphones to determine the battery life. Samples of phones of each brand were fully charged and left to run until the battery died. The table above displays the number of hours each of the batteries lasted. What test will be be using to test the difference in means?

○ Chi-square Test

○ Pearson Correlation Test

○ T-test

◉ ANOVA

✓ **Correct**
Correct! there are more than two groups

5. A room in a laboratory is only considered safe if the mean radiation level is 400 or less. When a sample of 10 radiation measurements were taken, the mean value of the radiation was 414 with a standard deviation of 17. There are concerns that mean radiation is above 414. Radiation levels in the lab are known to follow a normal distribution with standard deviation 22. We will like to conduct a hypothesis test at the 5% level of significance to determine whether there is evidence that the laboratory is unsafe.

What will be the appropriate test?

- ◉ z-test
- ○ t-test
- ○ ANOVA
- ○ Chi-square

✓ **Correct**
Correct! We use a z-test when the population standard deviation is known

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6. The mineral content of a particular brand of supplement pills is normally distributed with mean 490 mg and variance of 400. What is the probability that a randomly selected pill contains at least 500 mg of minerals?

- ◉ 0.3085
- ○ 0.2023
- ○ 0.0525
- ○ 0.7967

✓ **Correct**
Correct!

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7. The P-value for a normally distributed right-tailed test is $P=0.042$. Which of the following is **INCORRECT**?

- ○ The z-score test statistic is approximately $z=1.73$
- ◉ The P-value for a left-tailed test based on the same sample would be $P= -0.042$
- ○ We will reject H0 at $a=0.05$, but not at $a=0.01$
- ○ The P-value for a two-tailed test based on the same sample would be $P=0.084$

✓ **Correct**
Correct! P-values are proportion and range from 0 to 1. The left-tail test for this will also be 0.042

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8. The time X taken by a cashier in a grocery store express lane to complete a transaction follows a normal distribution with mean 90 seconds and standard deviation 20 seconds.What is the first quartile of the distribution of X (in seconds)?

- ○ 81.2
- ○ 88.0
- ○ 73.8
- ◉ 76.6

✓ **Correct**
Correct!

9. A man accused of committing a crime is taking a polygraph (lie detector) test. The polygraph is essentially testing the hypotheses

1 / 1 point

H0: The man is telling the truth vs. Ha: The man is not telling the truth.

Suppose we use a 5% level of significance. Based on the man's responses to the questions asked, the polygraph determines a P-value of 0.08. We conclude that:

○ The probability that the man is not telling the truth is 0.08.

◉ We fail to reject the null hypothesis as there is insufficient evidence that the man is not telling the truth.

○ We reject the null hypothesis as there is sufficient evidence that the man is telling the truth.

○ The probability that the man is telling the truth is 0.08.

✓ **Correct**
Correct! p-value is greater than 0.05

10. The average hourly wage at a fast-food restaurant is $5.85 with a standard deviation of $0.35. Assume that the wages are normally distributed. The probability that a selected worker earns more than $6.90 is

1 / 1 point

○ 0.4987

○ 0.9987

◉ 0.0013

○ 0

✓ **Correct**
Correct!