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1. Which of the following statements accurately describe the null hypothesis? Select all that apply. 0.5 / 1 point

- ☐ The alternative hypothesis typically assumes that observed data does not occur by chance.
- ☒ The alternative hypothesis typically assumes that observed data occurs by chance.

☒ This should not be selected
Review [the video that introduces hypothesis testing](#).

- ☐ The null hypothesis typically assumes that observed data does not occur by chance.
- ☒ The null hypothesis typically assumes that observed data occurs by chance.

☒ Correct

2. What claim states that the results of a test or experiment are not explainable by chance alone? 1 / 1 point

- ☐ P-value
- ☒ Statistical significance
- ☐ Confidence level
- ☐ Significance level

☒ Correct

3. When would a data professional reject the null hypothesis? 1 / 1 point

- ☒ When their p-value is less than their significance level
- ☐ When their significance level is less than their p-value
- ☐ When their test statistic is less than their p-value
- ☐ When their p-value is less than their test statistic

☒ Correct

4. A data professional conducts a hypothesis test. When they draw their conclusion, they commit a type I error. Which of the following statements describe their error? Select all that apply. 1 / 1 point

☒ They reject a null hypothesis that is actually true.

☒ Correct

☐ They conclude their result occurred by chance when in fact it is statistically significant.

☐ They fail to reject a null hypothesis that is actually false.

☒ They conclude their result is statistically significant when in fact it occurred by chance.

☒ Correct

5. A data professional on a marketing team conducts a hypothesis test to compare the mean time customers spend on two different versions of a company's website. To start, they state the null hypothesis and the alternative hypothesis. What should they do next? 0 / 1 point

☐ Find the margin of error

☐ Reject or fail to reject the null hypothesis

☒ Find the p-value

☐ Choose a significance level

☒ Incorrect

Review [the video that introduces hypothesis testing](#)^[7].

6. A data professional conducts a hypothesis test. They choose a significance level of 1%. They calculate a p-value of 0.01%. What conclusion should they draw? 1 / 1 point

☐ Fail to reject the null hypothesis.

☐ Fail to reject the alternative hypothesis.

☐ Reject the alternative hypothesis.

☒ Reject the null hypothesis.

☒ Correct

7. In a one-sample hypothesis test of the mean, what are the typical options for the alternative hypothesis? Select all that apply. 1 / 1 point

☒ The population mean is not equal to an observed value.

☒ Correct

☒ The population mean is greater than an observed value.

☒ Correct

☒ The population mean is less than an observed value.

☒ Correct

☐ The population mean is equal to an observed value.

8. A data professional conducts a hypothesis test to compare the mean annual sales of two different restaurants in the same restaurant chain. They write the following code:
`scipy.stats.ttest_ind(a=530, b=550, equal_var=False)`

1 / 1 point

What does the argument `b=550` refer to?

- ☐ Whether or not the population variance of the two samples is assumed to be equal
- ☐ Significance level
- ☒ Observations from the second sample
- ☐ P-value

☒ Correct