

# AP Statistics Exam Review

## Choosing Correct Inference

Names: \_\_\_\_\_

\_\_\_\_\_ Confidence Interval for a Population Mean

\_\_\_\_\_ Confidence Interval for a Population Proportion

\_\_\_\_\_ Confidence Interval for the Diff. Between 2 Independent Pop. Means

\_\_\_\_\_ Confidence Interval for Paired Data (Dependent Samples)

\_\_\_\_\_ Confidence Interval for the Difference Between 2 Pop. Proportions

\_\_\_\_\_ Hypothesis Test for a Population Mean

\_\_\_\_\_ Hypothesis Test for a Population Proportion

\_\_\_\_\_ Hypothesis Test for the Difference Between 2 Population Means (Independent Samples)

\_\_\_\_\_ Hypothesis Test for Paired Data (Dependent Samples)

\_\_\_\_\_ Hypothesis Test for the Difference Between 2 Independent Pop. Proportions

\_\_\_\_\_ Chi-Square Goodness of Fit Test

\_\_\_\_\_ Chi-Square Test for Independence

\_\_\_\_\_ Chi-Square Test for Homogeneity

1. Do more rich people wear hats than poor people? 300 of each were followed.
2. How much better is natural sunlight compared to indoor lighting? 5000 seeds were planted outside and 4000 inside to see how many would germinate.
3. Do cars average greater than 5 miles an hour over the speed limit? Police officers randomly clocked 850 cars.
4. How much more likely are college teens than non-college teens to drink alcohol? 90 college teens and 90 non-college teens were asked if they had an alcoholic beverage last weekend.
5. Do men spend a higher percent of their free time outdoors than women? 95 men and 95 women were questioned.
6. Are oysters that grow under natural conditions more likely to form a pearl than oysters that are farmed? 4000 natural oysters and 3000 farmed oysters were checked for pearls.
7. Do people spend more time working or sleeping? 200 people were asked how many hours they work per week and how many hours per week they sleep.
8. About what percent of college students own a car? 700 college students were surveyed.
9. Is there evidence to suggest that people spend more time watching TV than all other forms of entertainment combined? 70 people were asked about the hours they spent watching TV and the hours they spent on other forms of entertainment.
10. Is the type of music that people listen to related to the state that they were born in? 10,000 Americans were asked what type of music they listened to and where they were born.
11. Does the home team win the majority of the time? 100 games were observed.
12. Do residents from each state spend the same amount of time on average watching television? 8000 people were asked what state they were born in and how many hours per week they watch television. The national television-viewing rate is 16 hours per week.
13. How much more time do men spend listening to music compared to women? 52 men and 52 women were surveyed.
14. You are interested in estimating the average number of people individuals interact with each day. You survey 300 Americans.
15. How much does proper lighting improve museums? Visitors were asked to rate the museum on a scale from 1 to 10 both before new lighting was installed and after the new lighting was installed.
16. How many more calories do people consume on days that they exercise vs. days without exercise? Caloric intake of 600 participants was charted for a day when they did exercise and a day when they did not exercise.
17. Does knowing which country a person's maternal grandmother was born help predict that person's political affiliation? 4000 people were asked what country their maternal grandmother was born in and what their political affiliation is.
18. You are interested in estimating the average number of used textbooks students sell per year. You survey 92 students at the end of the academic year.
19. Do teens drive faster on the freeway than the general public? Currently the general public averages 68 mph on the freeway. A random sample of 200 teens was observed.
20. What percent of new calculators are defective? A study was done on 4,000 new calculators.
21. Do all working hours experience the same productivity levels? 1000 employees were observed during each of the eight hours from 9:00 to 5:00.
22. How much higher is the suicide rate in New York on gloomy days compared to sunny days? The number of New York suicides that occurred during each of 35 gloomy days and the number that occurred during each of 55 sunny days were collected.
23. Will the democrat win the election? 1500 randomly selected voters were given an exit poll.
24. Do math students who spend time with a tutor earn a higher class average than those who do not have a math tutor? 43 students who used a tutor and 72 students who did not use a tutor took part in the study.
25. Is the distribution of bird species in the Tahoe area the same as in the Yosemite area? 720 Tahoe area birds and 814 Yosemite area birds were observed.
26. Do African Americans and Caucasians have the same distribution of blood types? 800 African Americans and 900 Caucasians were tested for blood type.

## Answers

- 14 18 Confidence Interval for a Population Mean
- 8 20 Confidence Interval for a Population Proportion
- 13 22 Confidence Interval for the Diff. Between 2 Independent Pop. Means
- 15 16 Confidence Interval for Paired Data (Dependent Samples)
- 2 4 Confidence Interval for the Difference Between 2 Pop. Proportions
- 3 19 Hypothesis Test for a Population Mean
- 11 23 Hypothesis Test for a Population Proportion
- 5 24 Hypothesis Test for the Difference Between 2 Population Means  
(Independent Samples)
- 7 9 Hypothesis Test for Paired Data (Dependent Samples)
- 1 6 Hypothesis Test for the Difference Between 2 Independent Pop. Proportions
- 12 21 Chi-Square Goodness of Fit Test
- 10 17 Chi-Square Test for Independence
- 25 26 Chi-Square Test for Homogeneity