

Name:

Partners:

Math Academy I

Date:

Review 7 Version A

[A] Ryan is testing if having a college degree causes higher salary. He asks 20 Scotts Valley adults, half of whom have college degrees, what their annual salary is. His data turn out to be statistically significant.

- T F 1. Ryan calculated σ_1 and σ_2 .
- T F 2. Ryan's study is an experiment.
- T F 3. Ryan is doing a two-tailed test.
- T F 4. Ryan is using a factorial design.
- T F 5. Ryan used random assignment.
- T F 6. Ryan rejects his null hypothesis.
- T F 7. Ryan may be making a type I error.
- T F 8. Ryan may be making a type II error.
- T F 9. Ryan is using a within-participants design.
- T F 10. Age is an extraneous variable in Ryan's study.
- T F 11. Ryan calculates a proportion for each sample.
- T F 12. Ryan's results may be skewed by sampling bias.
- T F 13. Ryan estimated σ_1 and σ_2 by calculating s_1 and s_2 .
- T F 14. Ryan is using inferential statistics, not probability.
- T F 15. Type of job is a confounding variable in Ryan's study.
- T F 16. Ryan has established a causal relationship between college degree and salary.
- T F 17. Ryan has proved that people with college degrees tend to earn higher salaries.
- T F 18. It is likely that there is a causal relationship between college degree and salary.
- T F 19. In the phrase "college completion may affect future salary;" *affect* should be *effect*.
- T F 20. Ryan concludes that having a college degree causes people to have higher salaries.
- T F 21. Ryan's independent variable is 10 people with a college degree and 10 people without one.
- T F 22. Ryan's alternate hypothesis is that people with college degrees do not tend to have higher salaries than people without a college degree.

[B] Design a study to test how eating breakfast affects academics. Use complete sentences for each of the following except #1.

1. Outline the design:

a) What is the independent variable?

b) What levels would you use for the independent variable?

c) What, conceptually, is the dependent variable?

d) How would you numerically define and measure the DV?

e) Circle one: experimental • quasi-experimental

f) Circle one: between-participants • within-participants

2. Outline an introduction, stating conceptually what you are studying, why it matters, and what you predict.

3. Outline a participants section, stating and briefly describing which classes or groups you would use in the study if you conducted it at SVHS.

4. Outline a procedure, explaining how you would carry out the study.

5. Outline a discussion section exploring likely reasons your results might turn out as predicted, including reasons due to confounding variables.

[C] In one or two formal paragraphs, do the following for the study in part [B].

1. Write an introduction, stating conceptually what you are studying, why it matters, and your prediction, with a justification. Begin the introduction with anecdotal evidence to draw the reader in.

[D] Do the following to organize your group's reviews.

1. Make sure your name and your partners' names are at the top of your review the first day.

2. Staple the reviews in order, all facing the same way. Put the staple in the very top left corner if everyone is finished or if the review is due; otherwise put the staple in the top right corner.

Name:

Math Academy I

Date:

Review 7 Version B

[A] Ryan is testing if having a college degree causes higher salary. He asks 20 Scotts Valley adults, half of whom have college degrees, what their annual salary is. His data turn out to be statistically significant.

- T F 1. Ryan calculated σ_1 and σ_2 .
- T F 2. Ryan's study is an experiment.
- T F 3. Ryan is doing a two-tailed test.
- T F 4. Ryan is using a factorial design.
- T F 5. Ryan used random assignment.
- T F 6. Ryan rejects his null hypothesis.
- T F 7. Ryan may be making a type I error.
- T F 8. Ryan may be making a type II error.
- T F 9. Ryan is using a within-participants design.
- T F 10. Age is an extraneous variable in Ryan's study.
- T F 11. Ryan calculates a proportion for each sample.
- T F 12. Ryan's results may be skewed by sampling bias.
- T F 13. Ryan estimated σ_1 and σ_2 by calculating s_1 and s_2 .
- T F 14. Ryan is using inferential statistics, not probability.
- T F 15. Type of job is a confounding variable in Ryan's study.
- T F 16. Ryan has established a causal relationship between college degree and salary.
- T F 17. Ryan has proved that people with college degrees tend to earn higher salaries.
- T F 18. It is likely that there is a causal relationship between college degree and salary.
- T F 19. In the phrase "college completion may affect future salary," *affect* should be *effect*.
- T F 20. Ryan concludes that having a college degree causes people to have higher salaries.
- T F 21. Ryan's independent variable is 10 people with a college degree and 10 people without one.
- T F 22. Ryan's alternate hypothesis is that people with college degrees do not tend to have higher salaries than people without a college degree.

[B] Design a study to test how exercise affects academics. Use complete sentences for each of the following except #1.

1. Outline the design:

a) What is the independent variable?

b) What levels would you use for the independent variable?

c) What, conceptually, is the dependent variable?

d) How would you numerically define and measure the DV?

e) Circle one: experimental • quasi-experimental

f) Circle one: between-participants • within-participants

2. Outline an introduction, stating conceptually what you are studying, why it matters, and what you predict.

3. Outline a participants section, stating and briefly describing which classes or groups you would use in the study if you conducted it at SVHS.

4. Outline a procedure, explaining how you would carry out the study.

5. Outline a discussion section exploring likely reasons your results might turn out as predicted, including reasons due to confounding variables.

[C] In one or two formal paragraphs, do the following for the study in part [B].

1. Write a participants section, stating which classes or groups you would use in the study if you conducted it at SVHS. Include a general demographic summary, plus any details about the students that could be relevant to the dependent variable. If you are doing a between-participants design, specify who would be in which group.

[D] Bonus.

1. Make up a data set satisfying the given criteria.

a) $\sigma = 1$

b) $\sigma = 10$

Name:

Math Academy I

Date:

Review 7 Version C

[A] Ryan is testing if having a college degree causes higher salary. He asks 20 Scotts Valley adults, half of whom have college degrees, what their annual salary is. His data turn out to be statistically significant.

- T F 1. Ryan calculated σ_1 and σ_2 .
- T F 2. Ryan's study is an experiment.
- T F 3. Ryan is doing a two-tailed test.
- T F 4. Ryan is using a factorial design.
- T F 5. Ryan used random assignment.
- T F 6. Ryan rejects his null hypothesis.
- T F 7. Ryan may be making a type I error.
- T F 8. Ryan may be making a type II error.
- T F 9. Ryan is using a within-participants design.
- T F 10. Age is an extraneous variable in Ryan's study.
- T F 11. Ryan calculates a proportion for each sample.
- T F 12. Ryan's results may be skewed by sampling bias.
- T F 13. Ryan estimated σ_1 and σ_2 by calculating s_1 and s_2 .
- T F 14. Ryan is using inferential statistics, not probability.
- T F 15. Type of job is a confounding variable in Ryan's study.
- T F 16. Ryan has established a causal relationship between college degree and salary.
- T F 17. Ryan has proved that people with college degrees tend to earn higher salaries.
- T F 18. It is likely that there is a causal relationship between college degree and salary.
- T F 19. In the phrase "college completion may affect future salary;" *affect* should be *effect*.
- T F 20. Ryan concludes that having a college degree causes people to have higher salaries.
- T F 21. Ryan's independent variable is 10 people with a college degree and 10 people without one.
- T F 22. Ryan's alternate hypothesis is that people with college degrees do not tend to have higher salaries than people without a college degree.

[B] Design a study to test how assigning homework affects academics. Use complete sentences for each of the following except #1.

1. Outline the design:

a) What is the independent variable?

b) What levels would you use for the independent variable?

c) What, conceptually, is the dependent variable?

d) How would you numerically define and measure the DV?

e) Circle one: experimental • quasi-experimental

f) Circle one: between-participants • within-participants

2. Outline an introduction, stating conceptually what you are studying, why it matters, and what you predict.

3. Outline a participants section, stating and briefly describing which classes or groups you would use in the study if you conducted it at SVHS.

4. Outline a procedure, explaining how you would carry out the study.

5. Outline a discussion section exploring likely reasons your results might turn out as predicted, including reasons due to confounding variables.

[C] In one or two formal paragraphs, do the following for the study in part [B].

1. Write a precise procedure. Be explicit with details that you could control that could have a significant impact on the results. Do not include details that are obvious or irrelevant.

[D] Bonus.

1. Make up a data set satisfying the given criteria.

a) $\sigma = 1, n > 2$

b) $\sigma = 10, n > 2, \mu = 21$

Name:

Math Academy I

Date:

Review 7 Version D

[A] Ryan is testing if having a college degree causes higher salary. He asks 20 Scotts Valley adults, half of whom have college degrees, what their annual salary is. His data turn out to be statistically significant.

- T F 1. Ryan calculated σ_1 and σ_2 .
- T F 2. Ryan's study is an experiment.
- T F 3. Ryan is doing a two-tailed test.
- T F 4. Ryan is using a factorial design.
- T F 5. Ryan used random assignment.
- T F 6. Ryan rejects his null hypothesis.
- T F 7. Ryan may be making a type I error.
- T F 8. Ryan may be making a type II error.
- T F 9. Ryan is using a within-participants design.
- T F 10. Age is an extraneous variable in Ryan's study.
- T F 11. Ryan calculates a proportion for each sample.
- T F 12. Ryan's results may be skewed by sampling bias.
- T F 13. Ryan estimated σ_1 and σ_2 by calculating s_1 and s_2 .
- T F 14. Ryan is using inferential statistics, not probability.
- T F 15. Type of job is a confounding variable in Ryan's study.
- T F 16. Ryan has established a causal relationship between college degree and salary.
- T F 17. Ryan has proved that people with college degrees tend to earn higher salaries.
- T F 18. It is likely that there is a causal relationship between college degree and salary.
- T F 19. In the phrase "college completion may affect future salary;" *affect* should be *effect*.
- T F 20. Ryan concludes that having a college degree causes people to have higher salaries.
- T F 21. Ryan's independent variable is 10 people with a college degree and 10 people without one.
- T F 22. Ryan's alternate hypothesis is that people with college degrees do not tend to have higher salaries than people without a college degree.

[B] Design a study to test how cell phone policy affects academics. Use complete sentences for each of the following except #1.

1. Outline the design:

a) What is the independent variable?

b) What levels would you use for the independent variable?

c) What, conceptually, is the dependent variable?

d) How would you numerically define and measure the DV?

e) Circle one: experimental • quasi-experimental

f) Circle one: between-participants • within-participants

2. Outline an introduction, stating conceptually what you are studying, why it matters, and what you predict.

3. Outline a participants section, stating and briefly describing which classes or groups you would use in the study if you conducted it at SVHS.

4. Outline a procedure, explaining how you would carry out the study.

5. Outline a discussion section exploring likely reasons your results might turn out as predicted, including reasons due to confounding variables.

[C] In one or two formal paragraphs, do the following for the study in part [B].

1. Write a discussion. Consider possible reasons for the results turning out as predicted, and what the real-world implications of them are.

[D] Bonus.

1. Make up a data set satisfying the given criteria.

a) $\sigma = 2.5, n > 4$

b) $\sigma = 2, \text{range} > 4$