

Names:

Date:

# Chapter One Test Research Methods (2023)

Estimate	/75
Part [A]	/15
Part [B]	/25
Part [C]	/35
Part [D]	/ 0
<b>Subtotal</b>	<b>/75</b>
Explanations	/25
<b>Total</b>	<b>/100</b>

**[A] In a sample of 210 children living within a mile of a coal-fired power plant, 38 had asthma. In a sample of 340 children not living within 20 miles of a coal-fired power plant, 24 had asthma.**

1. Which of these values is known?

- a)  $\mu_1$                                       b)  $p_1$                                       c)  $\hat{p}_1$                                       d)  $\bar{x}$

2. What is the independent variable?

- a) 550 children                                      b) type of power plant                                      c) asthma rates                                      d) distance

3. In which of the following sentences should *effect* be replaced with *affect*?

- a) Does pollution effect health?                                      b) What is pollution's effect on health?  
c) Does pollution have an unhealthful effect on children?                                      d) Is there a greater effect of pollution on children than on adults?

4. What level of measurement is the variable of distance from the power plant?

- a) interval                                      b) nominal                                      c) ordinal                                      d) ratio

5. If an environmentalist and a plant owner were arguing about the study, which variables would they focus on?

- a) The environmentalist would focus on mediating variables, and the coal plant owner would focus on confounding variables.  
b) The environmentalist would focus on moderating variables, and the coal plant owner would focus on mediating variables.  
c) The environmentalist would focus on extraneous variables, and the coal plant owner would focus on moderating variables.  
d) The environmentalist would focus on confounding variables, and the coal plant owner would focus on extraneous variables.

6. If coal plants actually have no effect on asthma rates, which of these is most likely the cause of the higher asthma rates near coal plants?

- a) confounding variables                                      b) mediating variables                                      c) moderating variables                                      d) both (b) and (c)

**[B] Choose a study summary from Monitor on Psychology that you did not choose for your review.**

1. Write the title of the summary and the date of the issue.

2. Precisely state the levels of the independent variable.

3. Precisely state the conceptual dependent variable and how it was defined for this study.

4. Could the researchers have used random assignment? Clearly explain how they would have done so or why they would not have done so.

5. Based on the answer to #4, what can be concluded in the study?

**[C] In the scenario in section [A], a significantly higher percentage of children living near a coal-fired power plant had asthma than children not living near one. Answer each of the following in two or more sentences. Do not attach pages.**

1. Children who are overweight are at greater risk for developing asthma. Explain why obesity is not a confounding variable in this study.

2. Burning coal puts soot into the air, creating a greater risk of asthma. Explain why amount of soot in the air is not a confounding variable in this study.

3. Since people don't want to live next to a power plant, housing prices are cheaper near power plants. Explain how this creates a confounding variable for this study.

4. A possible moderator variable is whether people spend a lot of time outdoors or not. Explain a possible interaction between this moderator and the independent variable.

5. Why can't the researchers use their results to conclude that living near a coal-fired power plant increases the likelihood of asthma in children? Use each of the following terms in your answer: *random assignment*, *quasi-experiment*, *causal relationship*, and *affect(s)* or *effect(s)*.

**[C] Bonus.**

1. Describe a reasonable true experiment to test if coal pollution increases the prevalence of asthma.

2. Make a clear graph showing the results of the asthma study. Make sure to include the independent variable, the levels of the independent variable, the dependent variable, and a title.