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| 1. Explain to a friend who is reading the local newspaper why they should not automatically believe a headline stating that there are 6 million homeless people in the United States. How should the friend approach such large, unsubstantiated numbers?   |  |  | | --- | --- | | *ANSWER:* |  | |

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| 2. Five people received the following scores on a personality test: 8, 12, 6, 9, and 15. Calculate the mode, median, mean, and range of this distribution of scores. Which measure of central tendency would change the most if an additional test score of 3 was included in the distribution?   |  |  | | --- | --- | | *ANSWER:* |  | |

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| 3. The incomes of six people are $30,000, $40,000, $60,000, $80,000, $100,000, and $120,000. Calculate the range and standard deviation of this distribution of scores. Explain why the standard deviation is a more reliable measure of variation than the range.   |  |  | | --- | --- | | *ANSWER:* |  | |

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| 4. The table below lists the scores of eight students on a test to measure anxiety, as well as the typical number of cigarettes each person smokes daily. Scores on the anxiety test can range anywhere from a low of 0 (indicating very low anxiety) to a high of 30 (indicating very high anxiety).  ​                        Anxiety              Cigarettes  Student        Test Score         Smoked Daily  ────────────────────────────────       1                   8                           11       2                   9                            3       3                  15                          11       4                  14                          16       5                  21                          26       6                  12                          10       7                  22                          24       8                  17                          18  ​  Construct a scatterplot to represent the correlation between smoking and anxiety. Describe the direction of the correlation and give two possible explanations for it.   |  |  | | --- | --- | | *ANSWER:* |  | |

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| 5. Sam believes that there is a relationship between maternal age and autism in children. More specifically, he believes that most children with autism spectrum disorder (ASD) were born to a mother who was older than 45 because he can think of many examples of older women giving birth to children with ASD. Even so, research on the causes of ASD does not show mother’s age as a cause of the disorder. What is Sam experiencing, and why?   |  |  | | --- | --- | | *ANSWER:* |  | |

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| 6. Outline specific flaws in a research study (sampling or design) that could hinder researchers’ ability to generalize findings from the study sample to the population.   |  |  | | --- | --- | | *ANSWER:* |  | |

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| 7. At Cornell University, 40 students are taking an economics course, 52 students are taking sociology, and 18 students are taking geology. For which of these three classes is there the greatest probability that more than 75 percent of the students have brown hair? Explain your answer and indicate why this explanation has relevance for generalizing appropriately from samples to the larger populations in which you are interested.   |  |  | | --- | --- | | *ANSWER:* |  | |

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| 8. Describe how a researcher might go about determining whether a hypothesis is statistically significant, using men’s and women’s scores on a laboratory test of empathy in your description.   |  |  | | --- | --- | | *ANSWER:* |  | |