

Team:

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Name:

Statistics Team Quiz 1

Explain each answer in one or more complete sentences.

1. What level of measurement is age?

ratio

2. Fill in the blanks with the appropriate symbols: _____ = 28% of the students at Hudson High are freshmen. In a survey of 50 of these freshmen, the average weekly homework load was _____ = 7.4 hours with standard deviation _____ = 2.8 hours.

**p
 \bar{x}
 s**

3. Natalie plans to compare the health of children who eat mostly organic foods to the health of children who do not eat organic foods. State her research design, the levels of her independent variable, her conceptual dependent variable with an appropriate operational definition.

**quasi-experimental
mostly organic foods
no organic foods
health
many possibilities**

4. State one or more possible confounds in Natalie study that would have been avoided if she had done a true experiment.

e.g., family income

5. Circle the appropriate term in each blank: Even if Natalie finds that the kids who eat mostly organic foods are healthier, because she did not use random assignment / random selection she cannot conclude that organic foods have an affect / effect on health.

**random assignment
effect**

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Statistics Team Quiz 2

Show all work. When there is no work to show, explain your reasoning in complete sentences.

1. In which direction is the distribution of annual income skewed?

right

2. Seventy out of 134 people surveyed say they support stricter gun control laws. Show this information in a circle graph.

3. What type of graph would be used to compare average reliability of American versus European versus Japanese cars?

bar graph

4. Make a relative frequency histogram for the following quiz score averages: 17.9, 16.1, 17.0, 15.1, 15.7, 17.3, 18.6, 16.4, 15.7, 16.8, 17.8, 15.3, 13.7, 12.3, 16.8, 16.4.

5. Make a graph to compare how well boys and girls did on the chapter 8 psychology test. Girls' scores were 59, 62, 74, 76, 78, 80, 81, 83, 85, 85, 86, 91, 94, 95, 95, 98, 102, 104, and 106. Boys' scores were 51, 65, 70, 73, 78, 87, 95, 96, 100, and 101.

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Statistics Team Quiz 3

Show all work. When there is no work to show, explain your reasoning in complete sentences.

1. Is the mean a resistant measure?

no

2. Calculate $\frac{\sum(x-13)^2}{4}$ for the data set { 10, 10, 11, 14, 20 }, and state what value this is.

**18
sample variance**

3. Approximate the 80th percentile of the data set { 3, 3, 6, 8, 8, 9, 9, 10, 11, 16, 20, 22, 25 }.

19.6

4. Calculate an estimate for the mean weight of 31 apples between 100 and 150 grams, 40 apples between 150 and 200 grams, and 22 apples between 200 and 300 grams.

176 grams

5. Calculate the variance for the following data, and make a box-and-whisker plot: 813, 1092, 1118, 1122, 1190, 1206, 1270, 1360, 1405, 1415, 1418, 1446, 1462, 1531, 1536, 1607, 1619, 1662.

**47238
Q₁ = 1190
Q₂ = 1410
Q₃ = 1531**

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Statistics Team Quiz 4-I

Show all work, and explain each aspect of your work in complete sentences.

1. What is the probability that two 12-sided dice total 6?

$\frac{5}{144}$

2. What is the probability that three 4-sided dice all roll the same number?

$\frac{1}{16}$

3. Ross and Ben each roll a 6-sided die. What is the probability that one of them rolls a 1 and the other rolls a 5?

$\frac{2}{36}$

4. August has 36 shirts. In how many ways can he select five of them to take with him on a trip and another ten to give to goodwill?

1.67×10^{13}

5. Jackson gives Gavin \$5 and draws two cards. Gavin will give Jackson \$60 if Jackson's second card is a king. What is Jackson's expected value?

-38¢

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Statistics Team Quiz 4-II

Show all work, and explain each aspect of your work in complete sentences. Use only unreduced fractions. Then convert your answer to a percentage to check it. When there is no work to show, explain your reasoning in complete sentences.

In a certain neighborhood there are 30 adults and 42 children. 17 of the adults are Republicans and 13 are Democrats. 6 of the Republicans and 8 of the Democrats are women.

1. What is the probability that an adult selected at random is a Democrat or a woman? **63.3%**

2. What is the probability that a resident selected at random is a Democrat, given she is a woman? **57.1%**

3. If four residents are selected randomly, what is the probability that at least one of them is a child? **97.3%**

4. If four residents are selected randomly, what is the probability that at least three of them are children? **44.4%**

5. If two adults are selected at random, what is the probability that one is a Republican and one is a Democrat? **50.8%**

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Statistics Team Quiz 5

Show all work. When there is no work to show, explain your reasoning in complete sentences.

1. Calculate the probability that more than 5 out of 15 6-sided dice will roll "1". 2.7%

2. Calculate the probability that the first 6 Travis rolls on 6-sided dice will be on his 6th roll. $\frac{3125}{46656}$

3. Calculate the population standard deviation for number of blood type O+ people there are in groups of 20 random Caucasians, given 37% of Caucasians are blood type O+. 2.2

4. Ms. Summers collects the following information about her first grade students: height, weight, birth month, number of absences last year, and distance lived from school. How many of these five variables are discrete? **two**

5. Marissa rolls two 8-sided dice. Make a histogram showing the probability distribution for number of 4's she rolls. Calculate the values using fractions only, and then use a `binom` function on the calculator to check your calculations. Round your calculator answers to the nearest tenth of a percent.

$$\begin{aligned}P(0) &= \frac{49}{64} \\P(1) &= \frac{14}{64} \\P(2) &= \frac{1}{64}\end{aligned}$$