Here we will take everything we have learned about statistics and use it to interpret data in each given scenario.

Let's Practice!

1. Is gas mileage affected by the brand of gas used? 90 cars were randomly assigned to brands A, B, and C gasoline. The resulting gas mileage was recorded in mpg (miles per gallon).

    Gas brand A: 18 mpg
    Gas brand B: 25 mpg
    Gas brand C: 16 mpg

    a. How many treatment groups were there?

    b. How many subjects were in each treatment?

    c. Do you think there were enough subjects in each treatment? Explain.

    d. How were the subjects assigned to the treatment groups? Why is this important?

    e. Do you see any issues with the design of this experiment? Explain.

    f. Newspaper reporters came up with some titles for this experiment. Which one is most appropriate?

        O "A certain brand of gas results in better gas mileage."
        O "Cars help improve gas mileage."
        O "People can get better gas mileage for their car."

Try It!

2. If you flip a coin enough times, it should land on heads 50% of the time and on tails 50% of the time. Take a coin and flip it 40 times.

    a. What is the proportion of times that the coin landed on heads?

    b. How close is your proportion to the theoretical result of 0.50 for the proportion of heads?

    c. Calculate the margin of error in your experiment.

    d. How reasonable do you think these results are?

1. In the last election, one of the states reported a close race. In a recent poll of 100 people from the state, the Democratic candidate had 47% support, while the Republican candidate had 45%. The margin of error for this poll is 5%.

   Part A: What is meant by a margin of error of 5%?

   Part B: What could be some reasons why the percentages of the two candidates do not add up to 100%?

   Part C: Upon further reading, the results of this poll can be said to be 'a toss-up'. Why would these results be interpreted in such a way?

Test Yourself! Practice Tool

Great job! You have reached the end of this section. Now it's time to try the "Test Yourself! Practice Tool," where you can practice all the skills and concepts you learned in this section. Log in to Math Nation and try out the "Test Yourself! Practice Tool" so you can see how well you know these topics!

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