READY

Topic: Finding probabilities from a two-way table

The following data represents a random sample of boys and girls and how many prefer cats or dogs. Use the information to answer the questions below.

	Cats	Dogs	Total
Boys	32	68	100
Girls	41	11	52
Total	73	79	152

1. $P(B) =$

2. $P(G) =$

3. $P(C) =$

4. $P(D) =$

5. $P(C|G) =$

6. $P(C \text{ or } B) =$

7. $P(D|B) =$

8. $P(B \cap D) =$

9. If this is a random sample from a school, what total percent of boys in this school do you think would prefer dogs?

10. What percent of students at the school would prefer cats?

11. If you sampled a different 152 students, would you get the same percentages? Explain.

12. What would happen to your percentages if you used a larger sample size?

SET

Topic: Distinguishing between surveys, observational studies, and experiments

For the following scenarios, identify each situation as a *survey*, *observational study*, or an *experiment*.

13. To determine if a new pain medication is effective, researchers randomly assign two groups of people to use the pain medication in group 1 and a placebo in group 2. Both groups are asked to rate their pain and the results are compared.

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14. Officials want to determine if raising the speed limit from 75 mph to 80 mph will have an impact on safety. To determine this, they watch a stretch of the highway when the speed limit is 75 and see how many accidents there are. Then they observe the number of accidents over a period of time on the same stretch of highway for a speed limit of 80 mph. They then compare the difference.

15. To determine if a new sandwich on the menu is preferred more than the original, the manager of the restaurant takes a random sample of customers that have tried both sandwiches and asks them which sandwich they like best.

16. A newspaper wants to know what its customer satisfaction is. It randomly selects 500 customers and asks them.

Mrs. Goodmore wants to know if doing homework actually helps students do better on their unit exams.

17. Describe how Mrs. Goodmore could carry out a survey to determine if homework actually helps. Explain the role of randomization in your design.

18. Describe how Mrs. Goodmore could carry out an observational study to determine if homework helps test scores.

19. Describe how Mrs. Goodmore could carry out an experiment to determine if homework helps test scores. Explain how you will use randomization in your design and how you will use a control.

20. If Mrs. Goodmore wants to determine if homework causes test scores to rise, which method would be best? Why?

GO

Topic: Recalling normal curves

The average resting heart rate of a young adult is approximately 70 beats per minute with a standard deviation of 10 beats per minute. Assuming resting heart rate follows a Normal Distribution, answer the following questions.

21. Draw and label the Normal curve that describes this distribution. Be sure to label the mean, and the measurements 1, 2, and 3 standard deviations out from the mean.

22. What percent of people have a heart rate between 55 and 80 beats per minute? Label these points on your Normal curve above and shade in the area that represents the percent of people with heartbeats between 55 and 80 beats per minute.

23. If a resting heart rate above 80 beats per minute is considered unhealthy, what percent of people have an unhealthy heart rate?

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