STAT 217: Quiz 16

1. In a study of the television viewing habits of children, a developmental psychologist selects a random sample of 100 first grade boys and 200 first grade girls. Each child is asked which of the following TV programs they like best: The Lone Ranger, Sesame Street, or The Simpsons. Results are shown in the contingency table below.

	Lone Ranger	Sesame Street	The Simpsons	Total
Boys	50	30	20	100
Girls	50	80	70	200
Total	100	110	90	300

2. Will you use a chi-squared test of homogeneity or independence?

3. State the hypotheses to be tested.

4. Make a table of expected counts.

5. Compare the table of expected counts to the table of observed counts. Do you think you will find evidence in favor of the alternative hypothesis? Briefly explain.

6. Calculate the chi squared test statistic.

7. What distribution does the test statistic follow under the null hypothesis?

8. Below is a picture of the distribution you named above. Draw a vertical line at the test statistic.

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curve(dchisq(x,2),xlim=c(0,25))
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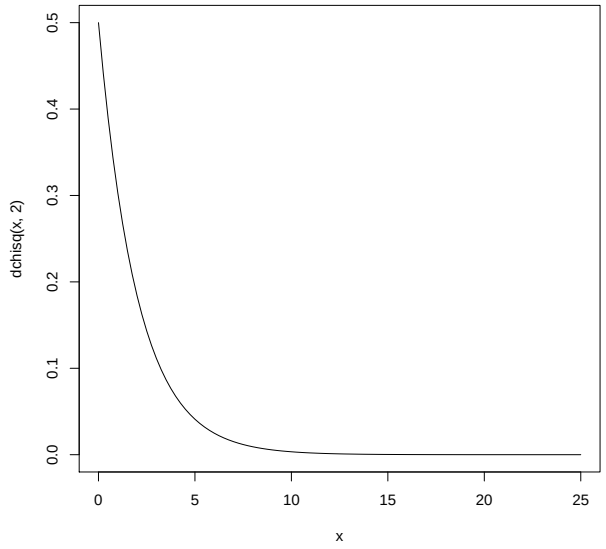

9. Based on the picture above, estimate the p-value.

10. Write a conclusion in the context of the problem.