**Unit 2 Assignment #2**

You and your brother drive to school together. Each week you fight over who will pay the $25 for gas each week. You decide to toss two coins. If the coins are both heads, or both tails, your brother pays for gas. If the coins are different, you pay.

1. What are the possible outcomes? Is the coin toss for gas a fair game? Explain.

2. How much should you expect to pay in a four week period? Explain.

3. Each week there are two outcomes: you pay or your brother pays. Draw a tree diagram to illustrate the outcomes of who pays over a four week period.

4. What is the theoretical probability that you will pay \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ in a four week period?

1. Zero times
2. Once
3. Twice
4. Three times
5. Four times

5. Complete the chart to simulate who pays each week for a year (52 weeks).

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| **Week #** | **1** | **2** | **3** | **4** | **5** | **6** | **7** | **8** | **9** | **10** | **11** | **12** |
| **Toss Result** |  |  |  |  |  |  |  |  |  |  |  |  |
| **Who Pays** |  |  |  |  |  |  |  |  |  |  |  |  |

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| **Week #** | **13** | **14** | **15** | **16** | **17** | **18** | **19** | **20** | **21** | **22** | **23** | **24** |
| **Toss Result** |  |  |  |  |  |  |  |  |  |  |  |  |
| **Who Pays** |  |  |  |  |  |  |  |  |  |  |  |  |

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| **Week #** | **25** | **26** | **27** | **28** | **29** | **30** | **31** | **32** | **33** | **34** | **35** | **36** |
| **Toss Result** |  |  |  |  |  |  |  |  |  |  |  |  |
| **Who Pays** |  |  |  |  |  |  |  |  |  |  |  |  |

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| **Week #** | **37** | **38** | **39** | **40** | **41** | **42** | **43** | **44** | **45** | **46** | **47** | **48** |
| **Toss Result** |  |  |  |  |  |  |  |  |  |  |  |  |
| **Who Pays** |  |  |  |  |  |  |  |  |  |  |  |  |

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| **Week #** | **49** | **50** | **51** | **52** |
| **Toss Result** |  |  |  |  |
| **Who Pays** |  |  |  |  |

6. From the chart, what is the experimental probability that you will pay \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ in a four week period?

a) zero times b) once c) twice d) three times e) four times

7. Compare your answers from question 6 to your answer from question 4. Explain the results.

|  |  |
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| a) zero times | b) once |
| c) twice | d) three times |
| e) four times |  |