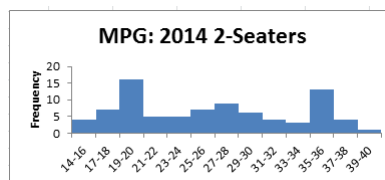


## MTH 105 Exam 2 Review Problems

Disclaimer: These problems are for additional practice on some topics and not representative of all topics that will be on the exam. See the recommended Mindscapes from the review sheet for a more comprehensive list.

1. Former CNN evening commentator Lou Dobbs doesn't like illegal immigration. One of his broadcasts in 2007 was largely devoted to attacking a proposal by the governor of New York State to offer drivers licenses to illegal immigrants as a public safety measure. During the show, Mr. Dobbs invited his viewers to go to loudobbs.com to vote on the question Would you be more or less likely to vote for a presidential candidate who supports giving drivers licenses to illegal aliens? We arent surprised that 97% of the 7350 people who voted by the end of the broadcast said, Less likely. Describe any potential biases with this poll.
2. Do you think sending a text message while driving, either on a cell phone or other electronic device, should be legal or illegal? When the New York Times and CBS News asked this question of 829 adults in October 2009, 97% said illegal and just 1% said legal. Can we trust the opinions of this sample to fairly represent the opinions of all adults? Here's part of the statement by the Times on how the poll was conducted:  
The latest New York Times/CBS News poll is based on telephone interviews conducted October 5 through October 8 with 829 adults throughout the United States. The sample of land line telephone exchanges called was randomly selected by a computer from a complete list of more than 69,000 active residential exchanges across the country. The exchanges were chosen so as to ensure that each region of the country was represented in proportion to its population. Within each exchange, random digits were added to form a complete telephone number, thus permitting access to listed and unlisted numbers alike. Within each household, one adult was designated by a random procedure to be the respondent for the survey. Discuss the pros and cons of this survey technique to address this particular question.
3. The Department of Energy provides fuel economy ratings for vehicles sold in the United States. The following is a histogram of the highway MPG for all 2014 2-seaters. Describe the key features of the shape of the graph. Explain why you believe the



graph has this shape?

4. Scores of high school seniors on the SAT follow the Normal distribution with mean 1026 and standard deviation 209. What proportion of seniors score at most 817?
5. The results are based on an Aug. 22-31 2013 Gallup survey, in which 5,100 random national adults were asked a number of questions about having children. Gallup found 31% of them believed that women should have their first child by age 25. Create a 95% confidence interval for the percentage of national adults who believe women should have their first child by age 25.