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Laboratory Activity 1 for Math 080: Topics from Chapter 1

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1 Introduction

Steven Levitt is one of the authors of the book Freakonomics. In this TED talk, he explains a statistical analysis done on data from the National Highway Transportation Safety Administration. Pay close attention to the specific data sets used in his presentation.

Answer the following questions and submit as a PDF file to jhanson2@whittier.edu.

2 Questions

1. Identify the *proportional data* listed for car-seats and different types of seat belt.

   Those data are the death rates among 2-6 year-old in car crashes on highway where someone dies unrestrained, in car seat, wearing lap and shoulder belt, and wearing lap belt.

2. Around minute 12:00, the speaker shows a graph of raw data of the "reduction of fatalities due to car seats, lap-and-shoulder seat belts, and lap-only seat-belts." Explain how these numbers are 0.1, 0.11, and 0.12, approximately. Where do these numbers come from on the previous slide?

   Based on the data, the number presented on the y-axis of the graph shows the difference in the percentages between the death rates among 2-6 year-old dying unrestrained and the death rates of the other three scenario: with car seat, wearing lap and shoulder belt and wearing lap belt only.

3. At the end of the talk, the speaker is asked a question about *injuries* rather than *fatalities*. How does he argue that seat belts are just as effective as car seats for children above the age of 2? What statistic does he quote for the New Jersey data sample?

   The speaker argues that there is not a statistical significance in serious injuries resulted from car crashes between young victims with car seat and wearing lap and shoulder seat belt. The data also show that 10% of the sample are injured, which were minor injuries but not serious injuries.