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.

   Car Seat: Sample -6835 Deaths – 18.2%

   Wearing Lap and Shoulder belt: Sample- 5045, Deaths- 19.4%

   Wearing Lap only belt: Sample- 4619, Deaths-16.7%

2. Around minute 12:00, the speaker shows a graph of raw data of the "reduction of fatalities due to car seats, lapand-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?

The numbers 0.1, 0.11 and 0.12 are the amounts of deaths reduced by Car Seat, and 2 types of seat belt relatively to the unrestrained. (Approximately 10,11, and 12 %?) We see similar numbers on the slide (Raw data on fatal crashes), but there, the numbers are not relative to unrestrained.

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?

Steven Levitt uses statistics from New Jersey crashes, that involve all crashes including fatalities. He said that there was insignificant difference in injuries between Car seats and belts. However, there is 10 % difference in minor crashes.