

Math 211 Quiz 2. Your Name:

1. (6 points) Avoiding an accident when driving can depend on reaction time. That time, measured from the moment the driver first sees the danger until he or she gets her foot on the brake pedal, is thought to follow a Normal model with a mean of 1.5 seconds and a standard deviation of 0.18 seconds.
 - (a) According to this model, what percentage of drivers have a reaction time of greater than 1 seconds (round your answer to the nearest hundredth, so your answer looks like XX.XX%)

 - (b) According to this model, 20% of drivers have a reaction time of less than how many seconds? (round to the nearest hundredth)

 - (c) Fill in the blank: According to this model, half of all drivers have a reaction time between 1.25 and _____ seconds? (round to the nearest hundredth)

2. (12 points) A survey was conducted in the United States and ten countries of Western Europe to determine the percentage of teenagers who had used marijuana and other drugs, to look for evidence that use of marijuana leads to use of other drugs. The results are summarized in the table below.
 - (a) Draw a scatterplot of the data (on your calculator, not here). The correlation coefficient is: _____ (fill in the blank). Do you think there is a relationship between marijuana use and the use of other drugs among teenagers? Explain (refer to the data!)

- (b) Do you think it is appropriate to model the relationship (if any) between the two variables with a *linear* model? Explain.
- (c) Whether or not you think it is appropriate, find the best-fit linear model that predicts the percentage of teenagers who have used other drugs. Your equation is : $\hat{y} = \text{---}x + \text{---}$
- (d) Explain what the slope of your best-fit line represents – be sure to mention the units the slope is measured in.
- (e) Predict the percentage of teenagers in Latvia who have used other drugs, if 10 percent of these teenagers have used marijuana.
- (f) Do these results confirm that marijuana use leads to the use of other drugs among Western European teenagers? Explain.