Concepts of hypothesis tests

#### Question 1

Based on a survey of 1,000 adults by Greenfield Online and reported in a May 2009 USA Today Snapshot, adults 24 years of age and under spend a weekly average of $35 on fast food. If 200 of the adults surveyed were in the age category of 24 and under and they provided a standard deviation of $14.50, construct a 95% confidence interval for the weekly average expenditure on fast food for adults 24 years of age and under. Assume fast food weekly expenditures are normally distributed.

#### Question 2

An experiment was designed to estimate the mean difference in weight gain for pigs fed ration A as compared with those fed ration B. Eight pairs of pigs were used. The pigs within each pair were littermates. The rations were assigned at random to the two animals within each pair. The gains (in pounds) after 45 days are shown below:

|  |  |
| --- | --- |
| RationA | RationB |
| 65 | 58 |
| 37 | 39 |
| 40 | 31 |
| 47 | 45 |
| 49 | 47 |
| 65 | 55 |
| 53 | 59 |
| 59 | 51 |

Assuming weight gain is normal, find the 95% confidence interval estimate for the mean of the differences μd where d= ration A – ration B.