Normal distribution practice 3 NAME:

For each problem, draw in the normal curve with the observation(s) marked. Also, shade the area under the curve that is of interest to us. And, of course, give the percentage that is asked for.

1. Fast Auto Service provides oil and lube service for cars. It is known that the mean time taken for an oil and lube service at this garage is 15 minutes with a standard deviation of 2.4 minutes. We can assume the distribution of service times is approximately normally distributed. Find the percentage of all service calls that take between 10 and 15 minutes.

2. The US Bureau of Labor Statistics recently conducted a survey concerning the weekly salaries of workers in US manufacturing industries. They found the mean weekly salary to be $473 with a standard deviation of $50. This distribution can be assumed to be normally distributed. Answer the following questions.

a.) What percent of weekly salaries is below $350?

b.) What percent of weekly salaries is above $500?

c.) Between what two salaries do the middle 95% of all salaries fall? Use the Empirical Rule.

3. The management of a supermarket wants to adopt a new promotional policy of giving a free gift to every customer who spends more than a certain amount in a single visit. It has been determined that the amount spent by customers is approximately normally distributed with a mean of $95 and a standard deviation of $21. If the manager wants to give a free gift to customers who spend more than $130, what percent of customers will get a free gift?

4. Most business schools require that every applicant for admission to a graduate degree program take the GMAT test. Suppose the GMAT scores of all students are normally distributed with a mean of 550 and a standard deviation of 90. If I want to score in the top ten percent, what score do I need? (Hint: Draw a picture. What z-score do we need? Work backwards to find the value of X or test score.)