Name:

Elementary Statistics HW 6.2 part 1

- 1. A density curve is a continuous probability distribution that satisfies what two properties?
- 2. With a uniform distribution, a continuous random variable's values are spread evenly over the range of possibilities. What shape is the graph of a uniform distribution?

For a New York City weekday late-afternoon subway from Times Square to the Mets stadium, you can take the #7 train that leaves Times Square every 5 minutes. Given the subway departure schedule and the arrival of a passenger, the waiting time x is between 0 and 5 minutes, as described by the uniform distribution below. Note that the waiting times can be any value between 0 and 5 minutes, so it is possible to have a waiting time of 2.33457 min. Assume all of the different possible waiting times are equally likely.



For questions 3-6, assume that a subway passenger is randomly selected and <u>find the probability</u> that the waiting time is within the given range:

- 3. Greater than 1.25 minutes
- 4. Less than 0.75 minutes
- 5. Between 1 minute and 3 minutes
- 6. Between 1.5 minutes and 4.5 minutes

- 7. A normal distribution is informally described as a probability distribution that is "bell-shaped" when graphed. Draw a rough sketch of a curve having the bell shape that is characteristic of a normal distribution.
- 8. Identify the requirements necessary for a normal distribution to be a standard normal distribution.
- 9. The graph below depicts the standard normal distribution of bone density scores with a mean of 0 and a standard deviation of 1. Use table A-2 in your reference packet to find the area of the shaded region.



For questions 10-12, assume that a randomly selected subject is given a bone density test. Those test scores are normally distributed with a mean of 0 and a standard deviation of 1. For each question, <u>sketch a graph</u> and <u>find the probability of the given scores</u> using table A-2 in your reference packet.

10. Less than -2.04

11. Less than -0.19

12. Less than 2.33