**ECO 173: Applied Statistics**

**Worksheet 1**

1. The distribution of blood cholesterol levels in 14 year old boys is roughly normal; the mean is 165mg and standard deviation is 30.
2. Sketch the Normal curve for the continuous random variable and properly label it. (You should do this always, even when the question does not specifically ask you for this).
3. What proportion of 14 year old boys has level between 120 and 200? Shade the appropriate area in the figure, and then determine the proportion.
4. What level marks the top 30%?
5. A machine is used to put bolts into boxes. It does so much that the actual number of bolts in a box is normally distributed with a mean of 106 and a standard deviation of 2.
6. Sketch and label the normal curve from the information given.
7. What percentage of boxes contain more than 104 bolts?
8. What percentage of boxes contain more than 110 bolts?
9. What percentage of boxes contain less than 108 bolts?
10. What percentage of boxes contain less than 100 bolts?
11. What percentage of boxes contain between 102 and 112 bolts?
12. What percentage of boxes contain between 100 and 106 bolts?
13. White blood cell (WBC) count per cubic millimeter of whole blood has approximately the Normal distribution with mean 7500 and standard deviation 1750. The lowest 2% of all WBC counts are defined to be probable risks. How long must one’s WBC count be to fall in the at-risk group?
14. The GPA of college students is normally distributed with a mean of 3.00 and a standard deviation of 0.25.

a. An academic award is given to a student with a GPA of 3.75 or better. Calculate the probability of receiving an academic award.

b. What proportion of students have a GPA between 2.70 and 3.20?

c. Calculate the probability of GPA between 3.10 and 3.50.

d. Calculate the 65th percentile of GPA.

e. Calculate the 97th percentile of IQ.

f. Find the GPA separating the top 5% from the others.

g. Find the GPA separating the bottom 10% from the others.