Applications of the Normal Distribution: Cholesterol Levels in U.S. Females 20 to 34 years old

Use the information in the following setting to answer questions 1 through 6:
The link between high cholesterol levels in the blood and higher risk for cardio-vascular disease is well established. Results from a large sample survey reported by the National Center for Health Statistics indicated that, at the time of the survey (1988 to 1991), average cholesterol levels for females in the 20 to 34 year old demographic were approximately normally distributed with a mean of 185 mg/dl and a corresponding standard deviation of 39 mg/dl. Assume that the distributional characteristics remain unchanged for the women in this age group today.
[Source: National Center for Health Statistics, Health, United States, 1995-1996]

1) What proportion of the women in the 20 to 34 y/o age demographic have cholesterol levels that are less than 253 mg/dl?

2) What is the probability that a randomly selected woman will have a cholesterol level that is more than 225 mg/dl?

3) What proportion of the women in the 20 to 34 y/o age demographic have cholesterol levels between 140 and 175 mg/dl?

4) What proportion of the women in the 20 to 34 y/o age demographic have cholesterol levels are more than 175 or below 140 mg/dl?

5) What two values enclose the central 95% of cholesterol levels for women in this age demographic?

6) Women in this age demographic with cholesterol levels in the top 5% are considered to be at “high risk” for cardio vascular disease. The cholesterol level that separates this quantile from the remaining distribution is: