## Supplemental Exercises

1. Suppose the heights of males in a particular city are normally distributed with a mean of 68 inches and a standard deviation of 4 inches. What height separates the bottom $25 \%$ from the rest?
2. The mean temperature in Glens Falls for the month of February is 23 degrees with a standard deviation of 4.2 degrees. How warm would it have to be in order to be in the warmest $15 \%$ of days?
3. The distances male long jumpers for State College jump are approximately normal with a mean of 263 inches and a standard deviation of 14 inches.

Suppose a male long jumper's jump ranked in the 75th percentile. How long was his jump?
4. The scoring of modern IQ is such that Intelligence Quotients (IQs) have a normal distribution of $\mu=100$ and $\boldsymbol{\sigma}=15$.

Mensa International is a non-profit organization that accepts only people with IQ score within the top $2 \%$. What level of IQ qualifies one to be a member of Mensa?
5. What is the z -score value that corresponds to the 30 th percentile?
6. In a weightlifting competition, the amount that the competitors can lift is normally distributed with $\mu=$ 196 kg and $\sigma=11 \mathrm{~kg}$. Only the top $10 \%$ of all competitors will be able to advance to the next phase of the competition. What amount must a competitor lift in order to move into the next phase of the competition?

