Solution:

(a) \( z = \frac{103 - 81}{11.4} = 1.93 \). The Yankees were 1.93 standard deviations above the mean number of wins.

(b) \( z = \frac{70 - 81}{11.4} = -0.96 \). The Mets were 0.96 standard deviations below the mean number of wins.
a) Here is a Normal curve for the distribution of batting averages. The mean and the points one, two and three standard deviations from the mean are labeled.
(b) Here is a curve showing the proportion of batting averages above 0.329. Since 0.329 is exactly two standard deviations above the mean, we know that about 95% of batting averages will be between 0.193 and 0.329. Since the curve is symmetric, half of the remaining 5%, or 2.5% should be above 0.329.
(c) Here is a curve showing the proportion of batting averages between 0.193 and 0.295. We know that about 68% of batting averages are between 0.227 and 0.295. Also, we know that half of the difference between 95% and 68% should be between 0.193 and 0.227. Therefore, about 13.5% + 68% = 81.5% of batting averages will be between 0.193 and 0.295.
State: Let $x$ = height of a randomly selected three year old female. This variable has the $N(94.5, 4)$ distribution. The third quartile is the value with 75% of the distribution to its left.

Plan: The picture below illustrates what we are trying to find.
A. The third quartile of 3 year old female heights is 97.18 cm or (calc: 97.20).
B. The median height of 3 year old females is 94.5 cm.
C. The girl would rank in the 24th percentile for height of 3 year old females.
D. The girl is 99.86 cm tall.
E. The girl would rank in the 68th percentile for height of 3 year old females.