Ch 5.3 Other Normal Distributions

If $\mu \neq 0$ or $\sigma \neq 1$ (or both), we will convert values to standard scores using z-scores, then procedures for working with all normal distributions are the same as those for the standard normal distribution.

- draw a picture of the distribution
- convert to z-scores
- look up percentages/probabilities that correspond with each z-score
- determine if need to add or subtract the probabilities or leave as is.

Ex1) In redesigning jet ejection seats to better accommodate women as pilots, it is found that women's weights are normally distributed with a mean of 143 and standard deviation of 29. If a women is selected what is the probability that she weights between 143-201 pounds?

- Draw a picture
- Find the z-score:
- look up corresponding probability with that z-score.

Probability of Weight between 143 pounds and 201 pounds

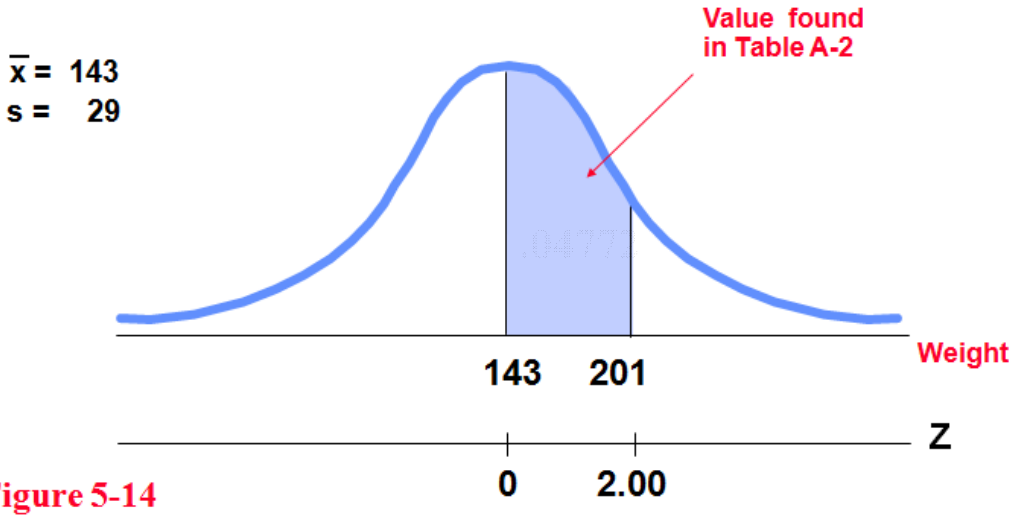

Figure 5-14

47% of the women pilots fall between 143-201 pounds.

Ex2) Ejection seats were designed for men weighing between 140 and 211 pounds. What percentage of women fall within those weights?

- draw a picture
- find z-scores
- determine the percentages for each.
- then determine the total percentages.

Ex3) Find the proportion of women that way between 100 and 130 pounds?

- draw a picture
- find z-scores
- determine the percentages for each.
- then determine the total percentages.