

Homework #3 - Stat 202-Cover

① Read

EXAMPLE

1.10 Vitamin D. Your body needs vitamin D to use calcium when building bones. It is particularly important that young adolescents have adequate supplies of this vitamin because their bodies are growing rapidly. Vitamin D in the form 25 hydroxy vitamin D is measured in the blood and represents the stores available for the body to use. The units are nanograms per

milliliter (ng/ml) of blood. Here are some values measured on a sample of 20 adolescent girls aged 11 to 14 years:³

16	43	38	48	42	23	36	35	37	34
25	28	26	43	51	33	40	35	41	42

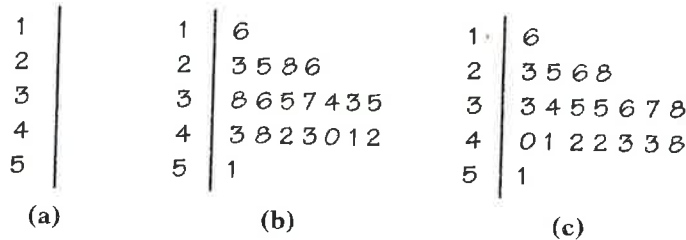


FIGURE 1.6 Making a stemplot of the data in Example 1.10. (a) Write the stems. (b) Go through the data and write each leaf on the proper stem. For example, the values on the 2 stem are 23, 25, 28, and 26 in the order given in the display for the example. (c) Arrange the leaves on each stem in order out from the stem. The 2 stem now has leaves 3, 5, 6, and 8.

1.9 Why should you keep the space? Suppose that you had a data set for girls similar to the one given in Example 1.10, but that the observation of 23 ng/ml was changed to 25 ng/ml.

- Make a stemplot of these data for girls only using split stems.
- Should you use one stem or two stems for the 20s? Give a reason for your answer. (*Hint:* How would your choice reveal or conceal a potentially important characteristic of the data?)

1.33 Diabetes and glucose. People with diabetes must monitor and control their blood glucose level. The goal is to maintain "fasting plasma glucose" between about 90 and 130 milligrams per deciliter (mg/dl). Here are the fasting plasma glucose levels for 18 diabetics enrolled in a diabetes control class, five months after the end of the class:¹⁷

141	158	112	153	134	95	96	78	148
172	200	271	103	172	359	145	147	255

Make a stemplot of these data and describe the main features of the distribution. (You will want to trim and also split stems.) Are there outliers? How well is the group as a whole achieving the goal for controlling glucose levels?

1.34 Compare glucose of instruction and control groups. The study described in the previous exercise also measured the fasting plasma glucose of 16 diabetics who were given individual instruction on diabetes control. Here are the data:

128	195	188	158	227	198	163	164
159	128	283	226	223	221	220	160

Make a back-to-back stemplot to compare the class and individual instruction groups. How do the distribution shapes and success in achieving the glucose control goal compare?

② Solve

USE YOUR KNOWLEDGE

1.7 Make a stemplot. Here are the scores on the first exam in an introductory statistics course for 30 students in one section of the course:

(a)

80	73	92	85	75	98	93	55	80	90	92	80	87	90	72
65	70	85	83	60	70	90	75	75	58	68	85	78	80	93

Use these data to make a stemplot. Then use the stemplot to describe the distribution of the first-exam scores for this course.

~~split stems~~: back to back!

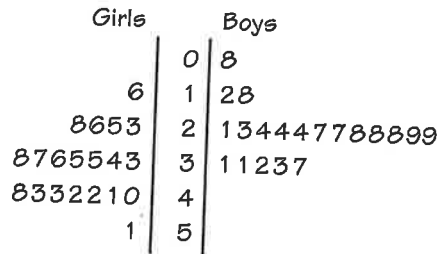
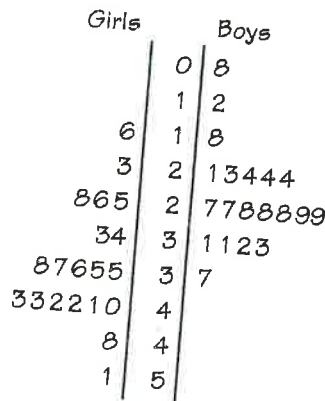


FIGURE 1.7 A back-to-back stemplot to compare the distributions of vitamin D for samples of adolescent girls and boys, for Example 1.11.

FIGURE 1.8 A back-to-back stemplot with split stems to compare the distributions of vitamin D for samples of adolescent girls and boys, for Example 1.12.



split stems
and
back to
back

USE YOUR KNOWLEDGE

1.8 Which stemplot do you prefer? Look carefully at the stemplots for the vitamin D data in Figures 1.7 and 1.8. Which do you prefer? Give reasons for your answer.