Boxplots Level 1 Name:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

|  |
| --- |
| Write the data for the pulse rates for the “lazy” group in the space below:  Find the 5-number summary for the “lazy” group.  Minimum:\_\_\_\_\_\_ Q1:\_\_\_\_\_\_\_ Median: \_\_\_\_\_\_\_ Q3:\_\_\_\_\_\_ Maximum: \_\_\_\_\_\_ |
| Write the data for the pulse rates for the “active” group in the space below:  Find the 5-number summary for the “active” group.  Minimum:\_\_\_\_\_\_ Q1:\_\_\_\_\_\_\_ Median: \_\_\_\_\_\_\_ Q3:\_\_\_\_\_\_ Maximum: \_\_\_\_\_\_ |
| Construct 2 boxplots, one for the “lazy” group and one for the “active” group on the same axis. Make sure you label your boxplots and scale your axis. |
| Compare the shape, centers, and spread for the boxplots above. Also comment on any potential outliers. Be sure your answer is in the context of the data sets (lazy/active). |

Boxplots Level 2 Name:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

|  |
| --- |
| Write the data for the pulse rates for the “lazy” group in the space below:  Find the 5-number summary for the “lazy” group. |
| Write the data for the pulse rates for the “active” group in the space below:  Find the 5-number summary for the “active” group. |
| Construct 2 boxplots, one for the “lazy” group and one for the “active” group on the same axis. Make sure you label your boxplots and scale your axis. |
| Compare the boxplots above. Also comment on any potential outliers. Be sure your answer is in the context of the data sets (lazy/active). |

Boxplots Level 3 Name:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

How does doing a physical activity affect your pulse rate?

You will gather data today from your class to address this question. Use the space below to record your data.

Represent the data gathered above with two boxplots constructed on the same axis.

Compare the boxplots in the context of the data sets. (Comment on the similarities and differences)

Boxplots AP Level

At a school field day, 40 students and 50 faculty members each completed an obstacle course. Descriptive statistics for the completion times (in minutes) for the two groups are shown below.

|  |  |  |
| --- | --- | --- |
|  | Students | Faculty |
| Mean | 9.90 | 12.09 |
| Median | 9.25 | 11.00 |
| Minimum | 3.75 | 4.50 |
| Maximum | 16.50 | 25.00 |
| Lower Quartile | 6.75 | 8.75 |
| Upper Quartile | 13.75 | 15.75 |

1. Use the same scale to draw boxplots for the completion times for students and for faculty members.
2. Write a few sentences comparing the variability of the two distributions.
3. You have been asked to report on this event for the school newspaper. Write a few sentences describing student and faculty performances in this competition for the paper.

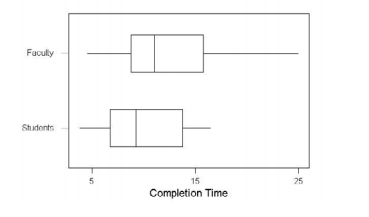
AP Scoring Guidelines:

<http://apcentral.collegeboard.com/apc/public/repository/b_statistics_frq_02_10325.pdf>

<http://apcentral.collegeboard.com/apc/public/repository/b_sg_statistics_02_11597.pdf>

Solution:

a)



1. The range for faculty competition times is larger than for the students, but the IQR is the same for both groups. The spread is similar in the middle 50% of the data, but for the smallest 25% and the largest 25% are more spread out for the faculty members than for the students.
2. Students should comment on at least two of the following: center (mean, median or general location), variation, or shape. The statements should be correct and clear and suitable for the school newspaper.

Example:

(Center): Although some faculty members negotiated the obstacle course quickly, in general students tended to have shorter completion times.

(Variation): The students’ completion times, ranging from 3.75 min to 16.5 min, were more consistent than the faculty times which ranged from 4.5 min to 25 min.

(Shape) Many students and faculty finished relatively quickly, but the slower half of each group tended to spread out.