

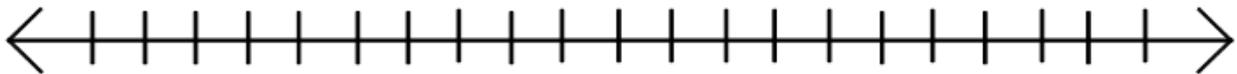
AP Stats POW #3

Answer each question as thoroughly as possible.

- At a school field day, 50 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.

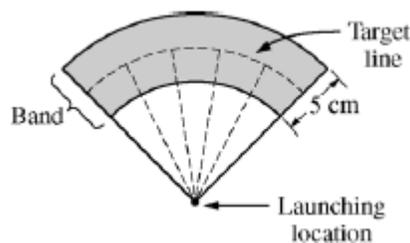
	Students	Faculty Members
Mean	9.90	12.09
Median	9.25	11.00
Minimum	3.75	4.50
Maximum	16.50	25.00
Lower Quartile	6.75	8.75
Upper Quartile	13.75	15.75

- Use the same scale to draw boxplots for the completion times for students and for faculty members.



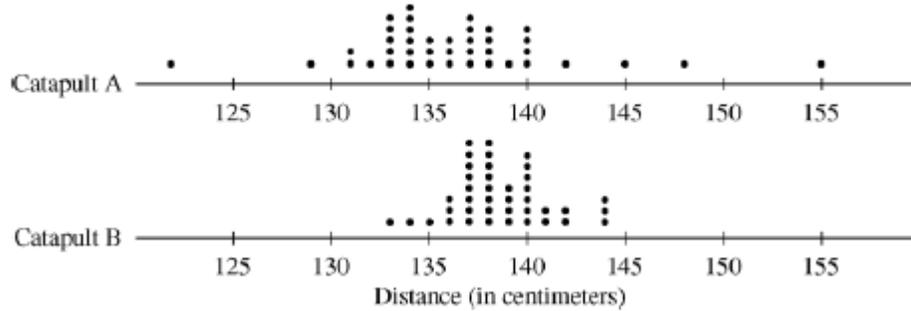
- Write a few sentences comparing the variability of the two distributions.
- You have been asked to report on this event for the school newspaper. Write a few sentences describing student and faculty performances in this competition for the paper.

- Two parents have each built a toy catapult for use in a game at an elementary school fair. To play the game, students will attempt to launch Ping-Pong balls from the catapults so that the balls land within a 5-cm band. A target line will be drawn through the middle of the band, as shown in the figure below. All points on the target line are equidistant from the launching location.



If a ball lands within the shaded band, the student will win a prize.

The parents have constructed two catapults according to slightly different plans. They want to test these catapults before building additional ones. Under identical conditions the parents launch 40 Ping-Pong balls from each catapult and measure the distance that the ball travels before landing. Distances to the nearest centimeter are graphed in the dotplots below.



- Comment on any similarities and any differences in the two distributions of distances traveled by balls launched from Catapult A and Catapult B.
- If the parents want to maximize the probability of having the Ping-Pong balls land within the band, which one of the two catapults, A or B, would be better to use than the other? Justify your choice.
- Using the catapult that you chose in part (b), how many centimeters from the target line should this catapult be placed? Explain why you chose this distance.