

PSSA and Keystone Exams  
Summer 2023 Workshops

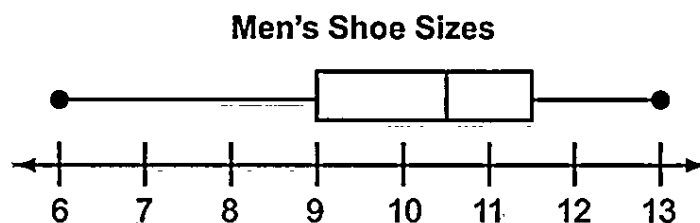
# PSSA, Grade 6 Math

*Men's Shoe Sizes*

Handscoring  
Practice Set 1<sup>\*</sup>

\*Responses in this set do not have true scores. Apply scores based on scoring criteria.

25. Carlos surveyed 40 men about their shoe sizes. Carlos made the box-and-whisker plot below to display his results.



- A. What was the median shoe size of the 40 men Carlos surveyed? Explain how you found your answer.

10.5 is the median because on the box-and-whisker plot there is a box, and in the box there is a line showing where the median is. The line is between 10 & 11 and in between 10 & 11 is 10.5 or  $10\frac{1}{2}$ .

25. *Continued.* Please refer to the previous page for task explanation.

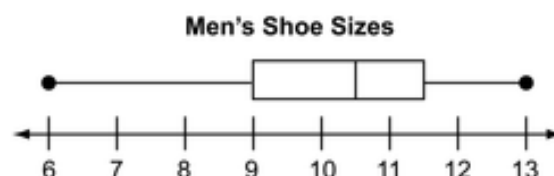
Martin thinks more men have shoe sizes between 6 and 9 than between  $11\frac{1}{2}$  and 13 because the whisker from 6 to 9 is longer than the whisker from  $11\frac{1}{2}$  to 13.

- B. Explain why Martin is not correct. As part of your explanation, find the number of men with shoe sizes in each interval and describe how you found those numbers.

Martin is incorrect because just because one side is longer than the other doesn't mean that more of the men's shoe sizes are on that side. It all depends on the #'s in each interval.  
Skewed to the left is  $7\frac{1}{2}$   
Skewed to the right is 12



Carlos surveyed 40 men about their shoe sizes. Carlos made the box-and-whisker plot below to display his results.



**A.** What was the **median** shoe size of the 40 men Carlos surveyed? Explain how you found your answer.

The median shoe size of the 40 men is 10.5. I got this answer because the line in the center of the box always shows what the median is.

136 / 1000

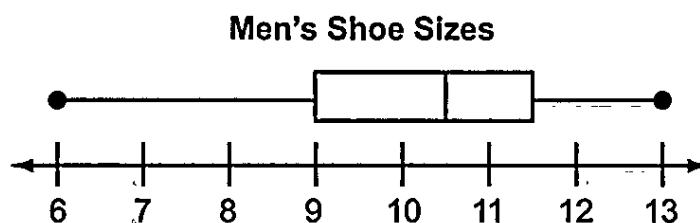
Martin thinks more men have shoe sizes between 6 and 9 than between  $11\frac{1}{2}$  and 13 because the whisker from 6 to 9 is longer than the whisker from  $11\frac{1}{2}$  to 13.

**B.** Explain why Martin is **not** correct. As part of your explanation, find the number of men with shoe sizes in each interval and describe how you found those numbers.

Martin is not correct because each section of the box-and-whisker plot is 25% of the data. There would be ten men with shoe sizes between 6 and 9 and  $11\frac{1}{2}$  and 13. I found this because if you did 25% plus 25% plus 25% plus 25% you would get 100. 40 divided by 4, because there were four 25s%, is 10.

300 / 1000

25. Carlos surveyed 40 men about their shoe sizes. Carlos made the box-and-whisker plot below to display his results.



- A. What was the median shoe size of the 40 men Carlos surveyed? Explain how you found your answer.

10.5 because you can  
cross at the other  
ones and you will  
get 10.5 as your  
answer.

25. *Continued.* Please refer to the previous page for task explanation.

Martin thinks more men have shoe sizes between 6 and 9 than between  $11\frac{1}{2}$  and 13 because the whisker from 6 to 9 is longer than the whisker from  $11\frac{1}{2}$  to 13.

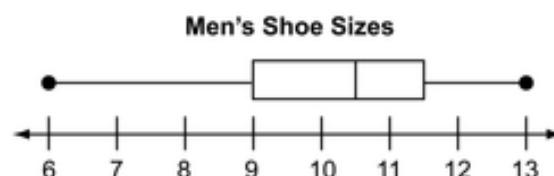
- B. Explain why Martin is not correct. As part of your explanation, find the number of men with shoe sizes in each interval and describe how you found those numbers.

He is correct because  
not many people  
have big feet so  
there  $11\frac{1}{2} - 13$   
so he is  
correct.





Carlos surveyed 40 men about their shoe sizes. Carlos made the box-and-whisker plot below to display his results.



**A.** What was the **median** shoe size of the 40 men Carlos surveyed? Explain how you found your answer.

Th median of the mens shoe sizw ia 9.5. I found my answer by adding all of the numbers up (6+7+8+9+10+11+12+13). Then I divided by how many numbers there are (8). Then I got my answer of 9.5.

191 / 1000

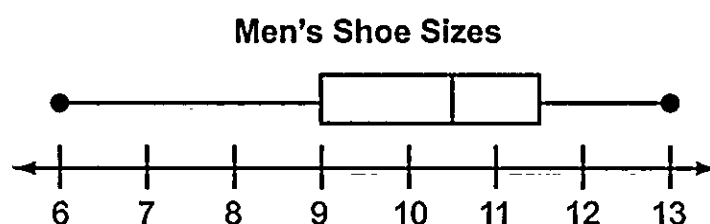
Martin thinks more men have shoe sizes between 6 and 9 than between  $11\frac{1}{2}$  and 13 because the whisker from 6 to 9 is longer than the whisker from  $11\frac{1}{2}$  to 13.

**B.** Explain why Martin is **not** correct. As part of your explanation, find the number of men with shoe sizes in each interval and describe how you found those numbers.

He is not correct because you would have to look at the larger numbers to see who has more shoe sizes. 12 I found this number by looking at what is in the middle of  $11\frac{1}{2}$ .

172 / 1000

25. Carlos surveyed 40 men about their shoe sizes. Carlos made the box-and-whisker plot below to display his results.



- A. What was the median shoe size of the 40 men Carlos surveyed? Explain how you found your answer.

10.5 is the median shoe size of the 40 men Carlos surveyed. I know this because the line in the center of the box is the median and it falls at 10.5 or  $10\frac{1}{2}$ .

25. *Continued.* Please refer to the previous page for task explanation.

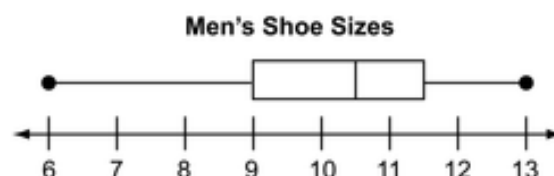
Martin thinks more men have shoe sizes between 6 and 9 than between  $11\frac{1}{2}$  and 13 because the whisker from 6 to 9 is longer than the whisker from  $11\frac{1}{2}$  to 13.

- B. Explain why Martin is not correct. As part of your explanation, find the number of men with shoe sizes in each interval and describe how you found those numbers.

Martin, you are not correct because each section of the box-and-whisker plot has the same number of data in it. Each section represents  $\frac{1}{4}$  of the data. The longer the section, the more spread out the data is. There are 10 men with shoe sizes between 6 and 9. There are also 10 men with shoe sizes from  $11\frac{1}{2}$  to 13. I know this because each interval is  $\frac{1}{4}$  of the data and  $\frac{1}{4} \times 40 = 10$ .



Carlos surveyed 40 men about their shoe sizes. Carlos made the box-and-whisker plot below to display his results.



**A.** What was the **median** shoe size of the 40 men Carlos surveyed? Explain how you found your answer.

The median of the 40 shoe sizes Carlos surveyed was 9 and 10. I found this answer by looking at his box and whisker plot and saw that the most number was 9 and 10. Also by seeing that the number 9 and 10 box was bigger than all the other ones and that means that 9 and 10 are the answer. You could also cross off each end one by one then see what one or ones are left and they are your median.

392 / 1000

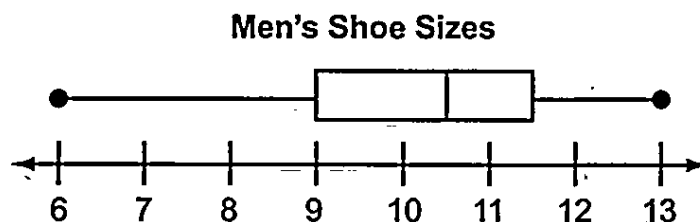
Martin thinks more men have shoe sizes between 6 and 9 than between  $11\frac{1}{2}$  and 13 because the whisker from 6 to 9 is longer than the whisker from  $11\frac{1}{2}$  to 13.

**B.** Explain why Martin is **not** correct. As part of your explanation, find the number of men with shoe sizes in each interval and describe how you found those numbers.

Martin is not correct because first off the longer and bigger box isn't always the answer and because the fact that more men have those size feet has nothing to do with the fact that that is his answer.

201 / 1000

25. Carlos surveyed 40 men about their shoe sizes. Carlos made the box-and-whisker plot below to display his results.



- A. What was the median shoe size of the 40 men Carlos surveyed? Explain how you found your answer.

The median shoe size of the 40 men Carlos surveyed was 10.5. I got that answer because the median line is in between 10 and 11. The line is right at 10.5.

25. *Continued.* Please refer to the previous page for task explanation.

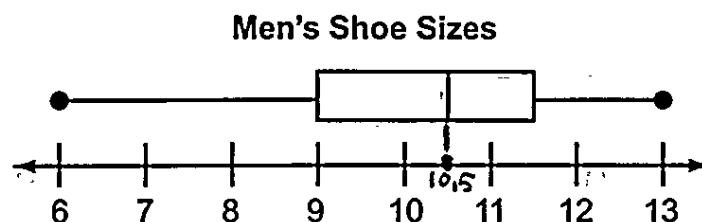
Martin thinks more men have shoe sizes between 6 and 9 than between  $11\frac{1}{2}$  and 13 because the whisker from 6 to 9 is longer than the whisker from  $11\frac{1}{2}$  to 13.

- B. Explain why Martin is not correct. As part of your explanation, find the number of men with shoe sizes in each interval and describe how you found those numbers.

Martin is incorrect because the line is only longer since the range from the lower quartile to the lower extreme is bigger than the range of the upper quartile to the high extreme. 10 men have shoe sizes in between each interval. Each interval is 25% so 25% of 40 is 10.

$$\frac{25}{100} = \frac{x}{40}$$

25. Carlos surveyed 40 men about their shoe sizes. Carlos made the box-and-whisker plot below to display his results.



- A. What was the median shoe size of the 40 men Carlos surveyed? Explain how you found your answer.

The median shoe size of the 40 men is 10.5 or  $10\frac{1}{2}$ . How I got my answer was by knowing that the line in the middle of the box was the median. So, what I did was draw a line down from the plot to touch the number line. As you can see from above, there is a line going down from the box to the number line. Since the line didn't go down and touch a whole number, I knew it wasn't 10 or 11. It was in between them, which was 10.5. This is how I know what the median is from the box and whisker plot.



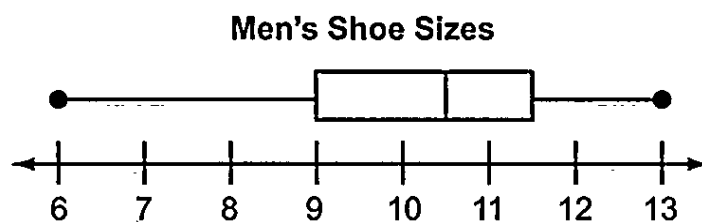
25. *Continued.* Please refer to the previous page for task explanation.

Martin thinks more men have shoe sizes between 6 and 9 than between  $11\frac{1}{2}$  and 13 because the whisker from 6 to 9 is longer than the whisker from  $11\frac{1}{2}$  to 13.

- B. Explain why Martin is not correct. As part of your explanation, find the number of men with shoe sizes in each interval and describe how you found those numbers.

Martin is not correct because when putting a whisker on a box-and-whisker plot, you need to have the minimum value and the lower quartile. Getting the lower quartile means you have to get the median of the 1<sup>st</sup> half of the numbers, and the median just so happened to be far away from the minimum value, which also shows that there were less men between 6 and 9, than between  $11\frac{1}{2}$  and 13. The minimum is 6. The maximum is 13. Lower quartile is 9. Upper quartile is 11.5, and the median is 10.5. This is why Martin is not correct.

25. Carlos surveyed 40 men about their shoe sizes. Carlos made the box-and-whisker plot below to display his results.



- A. What was the median shoe size of the 40 men Carlos surveyed? Explain how you found your answer.

The median shoe size of the 40 men Carlos surveyed is 10.5. I found my answer because I know that in a box-and-whisker plot, the middle vertical line in the box is the median. In this case, the middle vertical line in the box is above the spot between 10 and 11, proving that the median shoe size for the 40 men Carlos surveyed is 10.5.

25. *Continued.* Please refer to the previous page for task explanation.

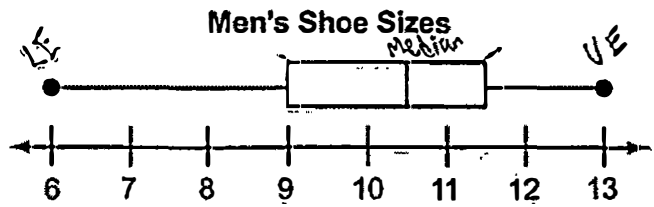
Martin thinks more men have shoe sizes between 6 and 9 than between  $11\frac{1}{2}$  and 13 because the whisker from 6 to 9 is longer than the whisker from  $11\frac{1}{2}$  to 13.

B. Explain why Martin is not correct. As part of your explanation, find the number of men with shoe sizes in each interval and describe how you found those numbers.

Martin is not correct because in a box-and-whisker plot, it does not matter how big each whisker or section in the box is, each quartile represents 25% of the data. In this case, since each whisker represents 25% of the data, 10 men are between 6 and 9 and 10 men are between  $11\frac{1}{2}$  and 13. I found this out since there are 40 men and 25% of 40 is 10.

1

74. Carlos surveyed 40 men about their shoe sizes. Carlos made the box-and-whisker plot below to display his results.



- A. What was the median shoe size of the 40 men Carlos surveyed? Explain how you found your answer.

The median is 10.5. I found my answer by looking at the line inside box on the box-and-whisker plot.

F

74. *Continued.* Please refer to the previous page for task explanation.

Martin thinks more men have shoe sizes between 6 and 9 than between  $11\frac{1}{2}$  and 13 because the whisker from 6 to 9 is longer than the whisker from  $11\frac{1}{2}$  to 13.

B. Explain why Martin is **not** correct. As part of your explanation, find the number of men with shoe sizes in each interval and describe how you found those numbers.

Martin is not correct because even though the whisker from 6 to 9 is longer that doesn't mean there is more men with those shoe sizes. There are 10 people that are a 6 to 9, and 10 people that are a  $11\frac{1}{2}$  to 13.



**PRACTICE SET 1\***

**Subject:** Math

**Item:** Men's Shoe Sizes

**Grade:**6

Name \_\_\_\_\_

Number	Score	Consensus	Notes
P1-1			
P1-2			
P1-3			
P1-4			
P1-5			
P1-6			
P1-7			
P1-8			
P1-9			
P1-10			

\* Responses in this set do not have true scores. Apply scores based on scoring criteria.