Use Sharon and Domingo's Data

Complete Questions 1-7 after reading the first part of the story *Two Heads Are Better Than One.*

1. Here is Domingo and Sharon's data. Fill in the ordered pairs. Graph the data on the *Graph Paper for Sharon and Domingo's Data* in the *Student Activity Book.*

Tennis Ball

D Drop Height (in cm)	B Bounce Height (in cm)				Ordered Pairs (D, B)
	Trial 1	Trial 2	Trial 3	Average	
40	20	22	21	21	(40, 21)
80	47	44	44	44	(.)
120	66	65	69	66	(.)

2. **A.** If Sharon "drops" the ball from 0 cm, will it bounce at all? That is, if D = 0 cm, B = _____?_____. Add this point to the graph.

   B. If the points lie close to a line, use a ruler to draw a best-fit line on your graph.

3. Look at Domingo and Sharon's data table in Question 1. What patterns do you see in the table?

4. Did Sharon and Domingo use the mean or median to average their data? Show or tell how you know.

5. Use your graph to predict the bounce height if the drop height is 60 cm. Show your work on the graph.

6. Use your graph to predict the bounce height if the drop height is 160 cm. Show your work on the graph.

7. Compare your prediction to the predictions made by Sharon and Domingo in the story.

Continue reading the story.

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Compare Sharon's and Domingo's Graphs

Use Sharon's graph and Domingo's graph from the story to answer Questions 8-12.

8. **A.** Look at Sharon's graph. Predict the bounce height if the drop height were 180 cm.

   B. Make the same prediction using Domingo's graph.

   C. What is the difference between the two predictions?

9. **A.** Using Sharon's graph, predict the bounce height if the drop height is 200 cm.

   B. Using Domingo's graph, predict the bounce height if the drop height is 200 cm.

   C. What is the difference between these predictions?

   D. Using Sharon's graph, predict the bounce height if the drop height is 220 cm.

   E. Using Domingo's graph, predict the bounce height if the drop height is 220 cm.

   F. What is the difference between these predictions?

10. As you predict bounce heights using higher drop heights, what is happening to the difference between Sharon's and Domingo's predictions?

11. Compare Sharon's graph with Domingo's graph.

    A. How are the graphs alike?

    B. How are they different?

12. What can you tell Domingo about scaling his graph?

Finish reading the story to see if Sharon and Domingo can find out why their predictions are different.

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Workshop: Patterns

Questions 1–11 (SG pp. 195 and 201)

1. (80, 44), (120, 66)
   For the correct graph, see Sharon's Graph on p. 199

2. **A.** B = 0 cm (0, 0)

3. Possible response: The bounce height is about half of the drop height. The drop height is about 2 times as much as the bounce height.

4. The used the median. I know it is the median because they chose the middle number for each drop height.

5. **A.** 34 cm

   B. Answers will vary.

6. **A.** B = 88 cm

   B–C. Answers will vary.

7. Answers will vary. Students should notice the Domingo's predictions seem different.

8. **A.** 100 cm

   B. 80 cm

   C. 20 cm

9. **A.** Sharon's bounce height 110 cm

   B. Domingo's bounce height 86 cm

   C. The difference is 24 cm

   D. Sharon's bounce height 120 cm

   E. Domingo's bounce height 92 cm

   F. The difference is 28 cm.

10. The difference between their estimates is getting larger.

11. **A.** Possible Response: Both Sharon and Domingo graphed the drop height on the horizontal axis and the bounce height on the vertical axis. They both plotted their points correctly. Both Sharon and Domingo scaled the vertical axis by 10. Both Sharon and Domingo drew in a best-fit line that was close to the data points they had plotted.

    B. Sharon scaled the horizontal axis by 10 but Domingo started scaling the vertical axis by 10 and then when he got to 100 he started scaling by 20.

11. Answers will vary. If a graph is not scaled correctly, it will cause errors.