# Chapter 5 Problem Wrap-Up

**Student Text Page**
335

**Suggested Timing**
20–40 min

**Tools**
- graphing calculators

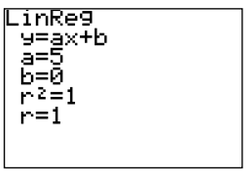
**Related Resources**
BLM 5-22 Chapter 5 Wrap-Up Rubric

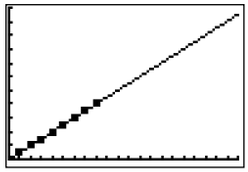
## Teaching Suggestions

- Have students read the Chapter Problem Wrap-Up and ensure they understand what they are being asked to do. Relate the Chapter Problem revisits to the Chapter Problem Wrap-Up scenario.
- Have students brainstorm in groups the strategies involved in completing this Chapter Problem. Discuss, as a class, the strategies and review necessary skills and concepts for solving the Chapter Problem.
- Circulate as students complete the Chapter Problem and assist them as necessary. Students can give more polished solutions if they have additional time.
- If you assigned the Chapter Problem revisits section by section, the Chapter Problem Wrap-Up can be used as part of a summative assessment.
- If you are assigning the Chapter Problem as a whole at the end of the chapter, you can use it as part of a summative assessment or as a formative assessment prior to a Chapter Test or Task.

**Level 3 Sample Response**

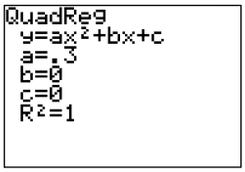
The manager is running at a constant speed, so a linear model should be appropriate.

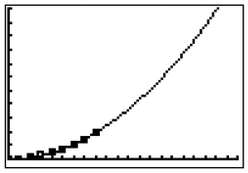


Xmin = 0, Xmax = 21, Xscl = 1, Ymin = 0, Ymax = 110, Yscl = 10

Susan is not running a constant speed. Try a quadratic model.

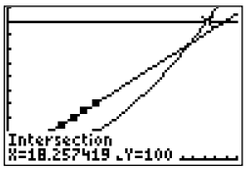


Xmin = 0, Xmax = 21, Xscl = 1, Ymin = 0, Ymax = 110, Yscl = 10

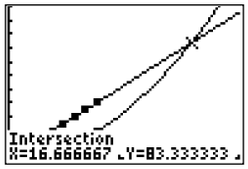
Since $r^2 = 1$, the quadratic model is a perfect fit.

Examine the two graphs and the graph of $y = 100$ to see who reaches 100 m first.




Susan reaches 100 m first, after approximately 18.3 s. Substitute $x = 18.3$ in the linear model to see where the manager is at this time. The manager has run 91.5 m when Susan finishes the race. Susan will win by 8.5 m.

For shorter distances, the manager is likely to win the race. For longer distances such as 100 m, Susan is more likely to win assuming that the quadratic model still applies. To see the distances where Susan is likely to win, look at the intersection point of the two graphs.




Susan will win if the race is longer than 83.3 m but her manager will win if the race is shorter than 83.3 m. If the race is for exactly 83.3 m, there will be a tie.



05-TR-FFCM12-Chap05_4th_B.indd 152 6/10/09 12:31:47 PM

### Level 3 Notes

Look for the following:

- appropriate regression models are tested on the data
- solution is logically organised with most necessary explanations
- some conclusions are supported with mathematical reasoning; others are based on graphs but reasoning is not explicit

### What Distinguishes Level 2

Look for the following:

- regression models are tested on the data but some may not be appropriate; exponential regression may be tested and chosen
- solution may lack logical organisation; some explanations may be missing
- few conclusions are supported with mathematical reasoning

### What Distinguishes Level 4

Look for the following:

- appropriate regression models are tested on the data; multiple models are tested and the best ones are chosen
- solution is logically organised and fully explained
- all conclusions are supported with mathematical reasoning

### Summative Assessment

- Use **BLM 5-27 Chapter 5 Problem Wrap-Up Rubric** to assess student achievement.



05-TR-FFCM12-Chap05_4th_B.indd 153 6/10/09 12:31:47 PM