# Review

**Student Text Pages**
300 to 301

**Suggested Timing**
60–75 min

**Tools**
- grid paper
- graphing calculator

**Related Resources**
- G–7 Trigonometric Graph Paper
- BLM 5–11 Chapter 5 Review

## Study Guide

Use the following study guide to direct students who have difficulty with specific questions to appropriate examples to review.

| Question | Section(s) | Refer to |
|---|---|---|
| 1 | 5.1 | Example 1 (page 254), Example 2 (page 255) |
| 2 | 5.1 | Example 3 (pages 255–256), Example 4 (page 256) |
| 3 | 5.1 | Example 1 (page 254), Example 2 (page 255), Example 3 (pages 255–256), Example 4 (page 256) |
| 4 | 5.2 | Example 1 (pages 263–264) |
| 5 | 5.2 | Example 4 (pages 265–266) |
| 6 | 5.2 | Example 3 (page 265) |
| 7 | 5.3 | Example 1 (pages 271–272) |
| 8 | 5.3 | Example 2 (pages 272–273) |
| 9 | 5.4 | Investigate (pages 282–283) |
| 10 | 5.4 | Example 2 (page 285) |
| 11 | 5.4 | Example 1 (pages 283–284) |
| 12 | 5.4 | Example 4 (page 286) |
| 13 | 5.5 | Investigate (pages 290–291), Example 1 (pages 292–293) |
| 14 | 5.5 | Example 2 (pages 293–294) |

# Problem Wrap-Up

**Student Text Page**
301

**Suggested Timing**
20–30 min

**Tools**
- grid paper
- graphing calculator
- computer
- *The Geometer's Sketchpad®*

**Related Resources**
- G–1 Grid Paper
- T–2 *The Geometer's Sketchpad®* 4
- BLM 5–12 Chapter 5 Problem Wrap-Up Rubric

**Summative Assessment**
- Use **BLM 5–12 Chapter 5 Problem Rubric** to assess student achievement.

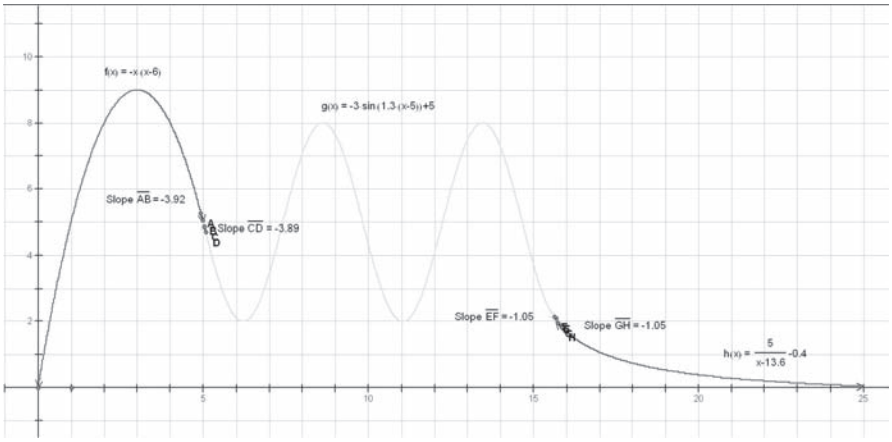
## Using the Chapter Problem

- If you have chosen to work on the Chapter Problem as it was introduced throughout the chapter, students will have the skills that they need to complete the problem wrap-up.
- If you have decided to leave all of the Chapter Problem to the end of the chapter, students will need to be given time, about 40–50 min, to work through the various parts of the problem introduced in each section. Alternatively, you can assign this part as homework.
- Consider allowing students to use technology such as *The Geometer's Sketchpad®* to prepare diagrams and make measurements. Use **T–2 *The Geometer's Sketchpad®* 4** to support this activity, if needed.

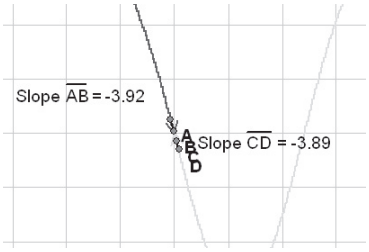
## Level 3 Sample Response

**a)** Use pencil and paper or technology to determine the equations.
Sample answers:
First part: $f(x) = -x(x - 6)$, $0 \le x \le 5$
Second part: $g(x) = -3\sin[1.3(x - 5)] + 5$, $5 \le x \le 15.7$
Third part: $h(x) = \dfrac{5}{x - 13.6} - 0.4$, $15.7 \le x \le 25$

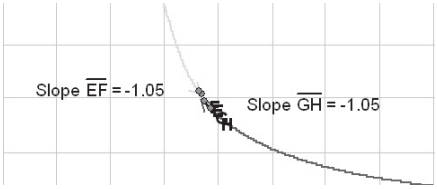
**b)**




**c)** Determine the rates of change on each side of the points where the different sections of the ride join.




The rates of change are within 10% of each other.




The rates of change are within 10% of each other.

## Level 3 Notes

Look for:

### Part a)

- Correct equations for each section of the ride
- Clear indication of the cross-over points
- Functions that actually meet at the cross-over points
- No "hills" that are taller than the first "hill"
- First equation is satisfied by (0, 0)
- Sinusoidal function includes at least two complete cycles
- Rational function decreases continually from left to right

### Part b)

- Neat, labelled diagram that includes all required parts of the ride with equations
- Cross-over points clearly marked
- Graphs that match the equations of the functions

### Part c)

- Calculation of the rate of change from the left and from the right, at each cross-over point
- Difference of 10% or less in the left and right rates of change

## What Distinguishes Level 2

### Part a)

- Polynomial function that misses the origin
- Less than two cycles in the sinusoidal function
- Rational function that does not decrease to a point near the ground
- Mismatch at the cross-over points

### Part b)

- Sloppily drawn diagram
- Cross-over points not indicated or incorrectly placed
- Visible mismatch at the cross-over points

### Part c)

- Small errors in the calculations of the rates of change
- Left and right rates of change that differ by more than 10%

## What Distinguishes Level 4

### Part a)

- Functions that match very smoothly at the cross-over points

### Part b)

- Diagram drawn using technology, making use of colour and other features to increase clarity and draw attention to important features such as cross-over points
- Aesthetically pleasing design
- Extra enhancements on the diagram not asked for in the question

### Part c)

- Left and right rates of change that differ by less than 5%
- Use of technology to calculate rates of change dynamically
- Any unexpected enhancements or features not asked for in the question