Review

Student Text Pages
244 to 245

Suggested Timing
60–75 min

Tools
- scientific calculator
- graphing calculator

Related Resources
- BLM 4–10 Chapter 4 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	4.1	Example 1 (page 205)
2	4.1	Example 2 (page 206)
3	4.1	Example 1 (page 205)
4	4.1	Example 2 (page 206)
5	4.1	Example 4 (page 207)
6	4.1	Example 4 (page 207)
7	4.2	Investigate 1 (pages 211–213)
8	4.2	Investigate 2 (page 213)
9	4.2	Example 1 (page 214)
10	4.3	Example 1 (pages 222–223)
11	4.3	Example 1 (pages 222–223)
12	4.3	Example 2 (page 223)
13	4.3	Example 1 (pages 222–223)
14	4.4	Example 1 (pages 230–231)
15	4.4	Questions 8–11 (page 233)
16	4.4	Questions 12–13 (page 233)
17	4.4	Example 2 (page 231)
18	4.5	Example 2 (page 238)
19	4.5	Example 1 (page 238), Example 4 (page 239)
20	4.5	Example 4 (page 239)
21	4.5	Investigate (pages 236–237)
22	4.5	Investigate (pages 236–237)
23	4.5	Example 3 (page 239)

Problem Wrap-Up

Student Text Page
245

Suggested Timing
20–30 min

Tools
- grid paper
- scientific calculator

Related Resources
- G–1 Grid Paper
- BLM 4–11 Chapter 4 Problem Wrap-Up Rubric

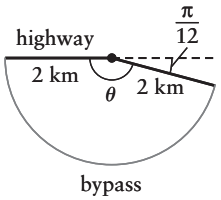
Summative Assessment
- Use **BLM 4–11 Chapter 4 Problem Rubric** to assess student achievement.

Using the Chapter Problem

- If you have elected to work on the Chapter Problem as it was introduced throughout the chapter, students will have the skills that they need to complete the Chapter Problem Wrap-Up.
- If you have elected to leave all of the Chapter Problem to the end of the chapter, students will need to be given 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.

Level 3 Sample Response

a) i)



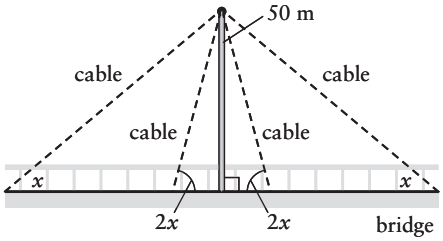
ii) Arc length $= r\theta$

$$= 2 \times \frac{11\pi}{12}$$

$$\doteq 5.76$$

The length of the bypass is about 5.76 km.

b) i)



ii) Let the length of the inner cable be represented by l_1, and the length of the outer cable be represented by l_2.

$$\sin 2x = \frac{l_1}{50} \qquad \sin x = \frac{l_2}{50}$$

$$l_1 = \frac{50}{\sin 2x} \qquad l_2 = \frac{50}{\sin x}$$

$$l_1 + l_2 = \frac{50}{\sin 2x} + \frac{50}{\sin x}$$

$$l = 50\left(\frac{1}{\sin 2x} + \frac{1}{\sin x}\right)$$

$$l = 50\left(\frac{1}{\sin 2x} + \frac{2\cos x}{2\sin x \cos x}\right)$$

$$l = 50\left(\frac{1}{\sin 2x} + \frac{2\cos x}{\sin 2x}\right)$$

$$l = \frac{50(1 + 2\cos x)}{\sin 2x}$$

Level 3 Notes

- Neat, labelled diagrams include all information for parts a) and b)
- For part a), accurate calculation of the arc length, including the formula used and concluding statement with correct units
- For part b), a complete development of the derivation asked for in the question
- For technology use, the inclusion of at least five of the features listed in the question, smooth operation of the animation, and obvious start, stop, and reset controls

What Distinguishes Level 2

- Diagrams are mostly complete but sloppily drawn and with some information missing for parts a) and b)
- For part a), arithmetic errors in the calculation of the arc length, the formula is not present, either no concluding statement or one with incorrect or missing units
- For part b), missing, unexplained, or unneeded steps in the development of the derivation asked for in the question
- For technology use, includes only three or four of the features listed in the question, jerky or otherwise improper operation of the animation, missing start, stop, or reset controls

What Distinguishes Level 4

- Diagrams drawn using technology for parts a) and b)
- For part b), a derivation uses reciprocal trigonometric ratios to avoid fractions until the last line
- For technology use, includes two or more features not listed in the question that enhance the animation, multiple animations, either simultaneous or sequential, imaginative subject material