Chapter Problem Wrap-Up

Student Text Pages
277

Suggested Timing
15–30 min

Tools
- computer with *The Geometer's Sketchpad®*

Related Resources
- BLM 4–14 Chapter 4 Problem Wrap-Up Rubric

Summative Assessment
- Use **BLM 4–14 Chapter 4 Problem Wrap-Up Rubric** to assess student achievement.

Using the Chapter Problem Wrap-Up

- If you have had students complete questions on the Chapter Problem as they worked through the chapter, they will now be able to complete the Chapter Problem Wrap-Up.
- You will need to book time in a computer lab so that students can complete part c) of the Chapter Problem Wrap-Up. Alternatively, if you have arranged for home access to *The Geometer's Sketchpad®*, you can assign part c) as homework. Students can e-mail the completed Chapter Problem Wrap-Up to you for assessment or evaluation purposes. Be sure to draw attention to the Chapter Problem Wrap-Up before assigning the Review.
- If you have chosen to use the Chapter Problem as a summative task or assessment, you will have told students that at the beginning of the chapter. Frequent reminders as students work through the chapter are helpful.

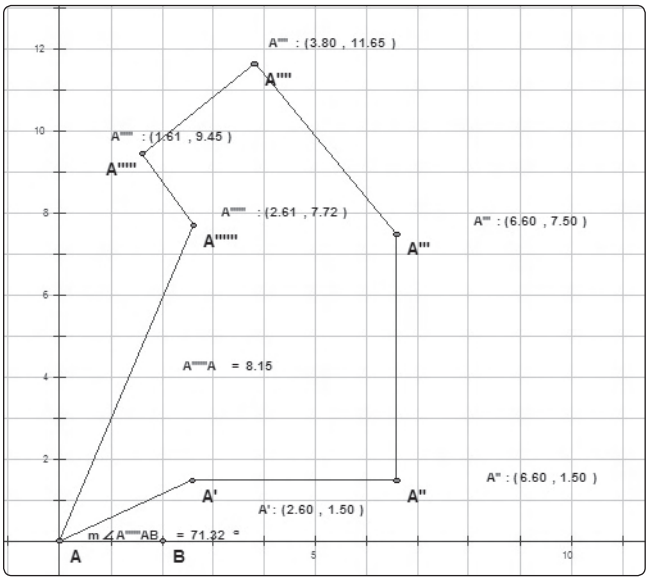
Level 3 Sample Response

a) Answers may vary. Students will need to have determined that checkpoint #6 is at the approximate coordinates (26, 77), a distance of 82 m from the starting point, in a direction of 19° east of north. To get back to the starting point, the student must walk in a direction 19° west of south for a distance of 82 m. Refer to the sample map shown in part c).

Sample answer:
Direction: West of south
Abbetown, Beeville, and Centreburg lie on the vertices of a right triangle, with Centreburg at the right angle. From Beeville, the other towns are separated by an angle of 50°. Beeville to Centreburg is a distance of 5 km. A helicopter is hovering over Abbetown at 2500 m. Determine the angle of elevation of the helicopter as seen from Centreburg. Use this angle.

b) Answers may vary.

c) A sample sketch using *The Geometer's Sketchpad®* is shown.



Level 3 Notes

Look for the following:

Part a)

- A map that shows the first six legs of the orienteering course
- Directions marked on the map
- Distances marked on the map
- Calculations for each leg, if you are using this as a summative assessment
- A problem that requires at least two steps to solve: a three-dimensional problem involving right triangles, or a two-dimensional problem involving the sine law or the cosine law and a trigonometric identity

Part b)

- A solution to a problem that requires at least two steps to solve

Part c)

- Use of a suitable scale
- Proper application of the **Transform** menu items to construct each of the six legs
- Labels showing the coordinates of each checkpoint
- Measurements showing the direction and distance back to the starting point from checkpoint #6
- Comparison with the result from the map drawn by the student

What Distinguishes Level 2

- Errors in determining distances and directions when plotting the legs
- Problems involve only simple trigonometric ratios in right triangles
- Problems requiring only one step to solve
- Little or no use of the sine or cosine laws
- Absence or very minimal use of trigonometric identities
- Direct drawing using the **Straightedge** tool rather than exact transformations

What Distinguishes Level 4

- Student map includes coordinates of checkpoints, as well as distances and directions
- Three-dimensional problems involve the sine law and the cosine law
- Problems require three or more steps to solve
- Map is enhanced with text boxes, colour, and other features that make it clearer and more informative