Chapter 2 Practice Test

Student Text Pages
104–105

Suggested Timing
45–70 min

Tools
- grid paper
- compasses
- protractor

Technology Tools
- *The Geometer's Sketchpad*®
- computer
- Cabri® Jr.
- graphing calculator

Related Resources
- G-1 Grid Paper
- G-3 Coordinate Grids
- G-4 Protractor
- T-4 *The Geometer's Sketchpad*® 3
- T-5 *The Geometer's Sketchpad*® 4
- BLM 2-11 Chapter 2 Practice Test
- BLM 2-12 Chapter 2 Test
- BLM 2-13 Chapter 2 Practice Test Achievement Check Rubric

Accommodations

Gifted and Enrichment—Encourage students to learn more about concentric circles.

Perceptual—Let students work with a partner for the questions that require students to plot points and/or the vertices of triangles.

Language—Encourage students to keep a word file of the new words in this chapter, such as "incentre," "circumcentre," "altitude," "angle bisector," and "right bisector," along with their definitions.

Memory—Provide students with a formula sheet to use when writing the Practice Test and the Chapter Test.

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	2.1	Example 1 (pages 60–61)
2	2.2	Example 1 (page 74)
3	2.4	Example 1 (page 94)
4	2.1/2.2	Example 1 (pages 60–61)/Example 1 (page 74)
5	2.4	Example 1 (page 94)
6	2.1	Example 3 (pages 63–64)
7	2.1/2.2	Example 3 (pages 63–64)/Example 1 (page 74)
8	2.2	Example 1 (page 74)
9	2.1	Example 2 (pages 62–63), Example 3 (pages 63–64)
10	2.4	Investigate (pages 92–94), Example 1 (page 94)
11	2.3	Example 3 (pages 86–87)
12	2.3	Example 2 (pages 85–86)
13	2.4	Investigate (pages 92–94), Example 2 (page 95)
14	2.1/2.4	Example 1 (pages 60–61), Example 3 (pages 63–64)/ Example 1 (page 94)

Using the Practice Test

This Practice Test can be assigned as an in-class or take-home assignment. If it is used as an assessment, use the following guidelines to help you evaluate the students.

Can students do each of the following?
- Determine the midpoint of a line segment
- Determine the length of a line segment
- Determine the equation of a line
- Determine the intersection of a pair of lines
- Calculate slope, midpoint, and length of a line in various applications
- Determine the equation of a circle centred at the origin given its radius or a point on the circle
- Determine whether a point lies on, inside of, or outside of a circle
- Illustrate the properties of a perpendicular bisector of a chord of a circle

Summative Assessment

- After students complete **BLM 2–11 Chapter 2 Practice Test**, use **BLM 2–12 Chapter 2 Test** as a summative assessment.

Achievement Check Sample Solution, question 14, page 105

Provide students with **BLM 2–13 Chapter 2 Practice Test Achievement Check Rubric** to help them understand what is expected.

14. a) Substitute the coordinates of point A(9, 5) into the equation for a circle.

$$\begin{aligned} x^2 + y^2 &= r^2 \\ 9^2 + 5^2 &= r^2 \\ 106 &= r^2 \\ \sqrt{106} &= r \end{aligned}$$

An equation of the circle is $x^2 + y^2 = 106$.

b) midpoint C: $\left(\frac{9+5}{2}, \frac{5+(-9)}{2}\right) = (7, -2)$

c) The perpendicular bisector passes through point C and is perpendicular to chord AB; that is, its slope multiplied by the slope of AB equals –1.

$$\begin{aligned} m_{AB} &= \frac{-9-5}{5-9} \\ &= \frac{-14}{-4} \\ &= \frac{7}{2} \end{aligned}$$

Slope of perpendicular bisector is $-\frac{2}{7}$.

The equation of the perpendicular bisector is $y = -\frac{2}{7}x + b$. Substitute (7, –2) to find b.

$$\begin{aligned} -2 &= -\frac{2}{7}(7) + b \\ b &= 0 \end{aligned}$$

The equation of the perpendicular bisector is $y = -\frac{2}{7}x$.

This line passes through the origin since (0, 0) satisfies this equation.

d) Answers may vary.

Solution 1: Form △OAC. Find the lengths of each side and then prove that the triangle is a right triangle, using the Pythagorean theorem.

Solution 2: Join C to O. Find the slope of CO and show that this line is perpendicular to AB. Since C is the midpoint of the chord, OC must be the perpendicular bisector.