4.4 Solving Problems Using Obtuse Triangles

**Example 1:** Three circles of radius 3, 5, and 7 cm are tangent to each other. Find the largest angle formed by joining their centers.

**Example 2:** A plane is sighted by two observers 1 km apart at angles 74° and 78°. The observers and the plane are in the same vertical plane. How high is the plane?
Example 3: An irregular plot of land has dimensions as shown. Find AB.

\[ a^2 = 350^2 + 200^2 - 2(350)(200)\cos 95^\circ \]
\[ a = 417.97 \]

\[ \frac{\sin c}{350} = \frac{\sin 95^\circ}{417.97} \]
\[ c = 57^\circ \]

\[ b^2 = 417.97^2 + 150^2 - 2(417.97)(150)\cos 73^\circ \]
\[ b = 400.67 \text{ m} \]
\[ AB = 400.67 \text{ m} \]

Example 4: From the top of a 30 m observation tower, a fire ranger observes smoke at a bearing of 90° with an angle of depression of 5°. The ranger spots more smoke at a bearing of 200° with an angle of depression of 2°. How far apart are the sources of smoke (to the nearest metre)?

Assignment: pg. 194 #2, 3, 8-10, 13, 14

p. 183 # 1, 2, 4 (a, c), 5, 6
p. 193 #1-5