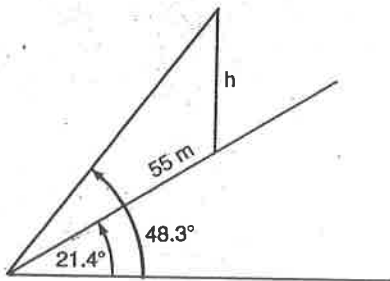


Assignment Solving Triangles

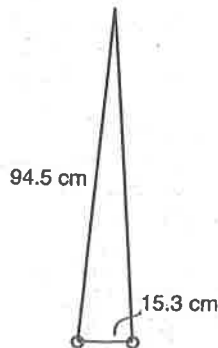
recall:

Given	Formula	You can calculate
ASA	$\frac{a}{\sin A} = \frac{b}{\sin B} = \frac{c}{\sin C}$	side
SAS	$a^2 = b^2 + c^2 - 2bc \cos A$ $b^2 = a^2 + c^2 - 2ac \cos B$ $c^2 = a^2 + b^2 - 2ab \cos C$	side
SSS	$\cos A = \frac{b^2 + c^2 - a^2}{2bc}$ $\cos B = \frac{a^2 + c^2 - b^2}{2ac}$ $\cos C = \frac{a^2 + b^2 - c^2}{2ab}$	angle
SSA	$\frac{\sin A}{a} = \frac{\sin B}{b} = \frac{\sin C}{c}$	angle

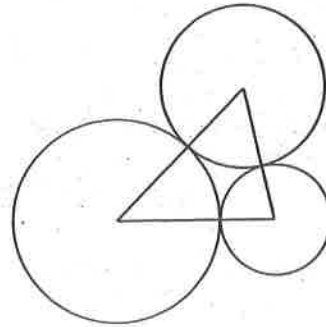
2. A light pole on a hillside casts a shadow of 55 m down the hill. If the angle of elevation of the sun is 48.3° and the angle of inclination of the hill is 21.4° , find the height of the pole.



3. A grandfather clock has a pendulum 94.5 cm long. From one end of the swing to the other, the straight line separation is 15.3 cm. Find the angle through which the pendulum swings.



6. Three circles with radii 35 cm, 50 cm, and 65 cm respectively are tangent to each other externally. Find the angles of the triangle formed by joining the centres of the circles.

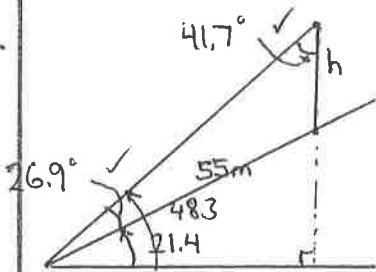


7. Two aircraft leave Mirabel Airport at approximately the same time flying at 750 km/h and 850 km/h. After 2.5 h, they are 1900 km apart. Find the angle between their flight paths.

Assignment P315 #2,3,7,13,16

15

2.



$$\frac{55}{\sin 41.7^\circ} = \frac{h}{\sin 26.9^\circ} \quad \checkmark$$

$$\therefore h = 37.4 \text{ m} \quad \checkmark$$

④

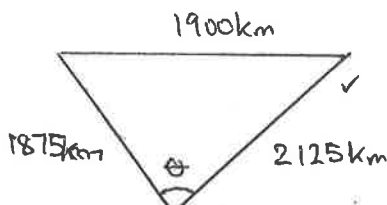
3.

$$15.3^2 = 94.5^2 + 94.5^2 - 2(94.5)(94.5) \cos \theta \quad \checkmark$$

$$\angle \theta = 9.3^\circ \quad \checkmark$$

③

7.

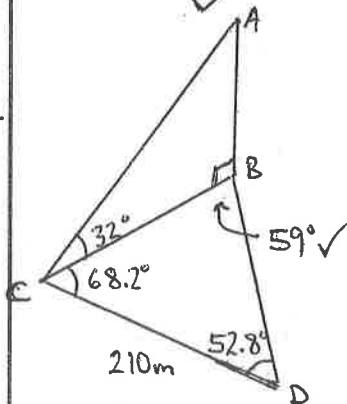


$$1900^2 = 1875^2 + 2125^2 - 2(1875)(2125) \cos \theta \quad \checkmark$$

$$\therefore \angle \theta = 56.3^\circ \quad \checkmark$$

③

13.



$$\frac{CB}{\sin 52.8^\circ} = \frac{210}{\sin 59^\circ} \quad \checkmark$$

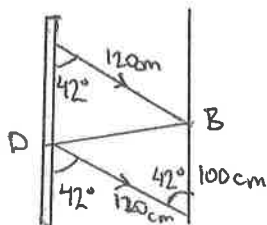
$$\therefore CB = 195.14 \quad \checkmark$$

$$\tan 32 = \frac{AB}{195.14} \quad \checkmark$$

$$\therefore AB = 121.9 \text{ m} \quad \checkmark$$

5

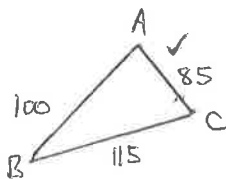
2 16.



$$DB^2 = 120^2 + 100^2 - 2(120)(100) \cos 42^\circ \quad \checkmark$$

$$\therefore DB = 81 \text{ cm} \quad \checkmark$$

⑤ 6.



$$a^2 = b^2 + c^2 - 2bc \cos A \quad \checkmark$$

$$115^2 = 100^2 + 85^2 - 2(100)(85) \cos A$$

$$\cos A = 0.23529$$

$$\angle A = 76.4^\circ \quad \checkmark$$

$$\frac{a}{\sin A} = \frac{b}{\sin B}$$

$$\frac{115}{\sin 76.4} = \frac{85}{\sin B}$$

$$\angle B = 45.9^\circ \quad \checkmark$$

$$\therefore \angle C = 57.7^\circ \quad \checkmark$$