

9.4 Answers

GCSE Mathematics Non-Right Angled Trigonometry

9.4.1 Solutions to 9.2 Exercise

Answer 1

(i) $\angle C = 42^\circ$

(ii) Sketch of triangle

(iii) $b = \frac{16 \times 0.996}{0.799} = 19.94 \text{ cm}$

$$c = \frac{16 \times 0.669}{0.799} = 13.40 \text{ cm}$$

Answer 2

(i) Sketch of triangle

(ii)

$$c^2 = 4^2 + 12^2 - 2 \times 4 \times 12 \times \cos 47$$

$$= 94.528$$

$$c = 0.72 \text{ cm}$$

(iii)

$$\text{Area } \Delta = \frac{1}{2} \times 4 \times 12 \times \sin 47$$

$$= 17.6 \text{ cm}^2$$

Answer 3

(i)

$$\cos A = \frac{12^2 + 10^2 - 18^2}{2 \times 12 \times 10}$$

$$= -0.333$$

$$A = 109.5^\circ$$

(ii)

$$\text{Area } \Delta = \frac{1}{2} \times 12 \times 10 \times \sin 109.5$$

$$= 56.6 \text{ cm}^2$$

Answer 4

(i) Sketch of triangle

(ii)

$$m^2 = 4.5^2 + 2.7^2 - 2 \times 4.5 \times 2.7 \times \cos 112$$

$$= 36.6525$$

$$m = 6.05 \text{ cm}$$

Answer 5

$$x = \frac{14 \times \sin 134}{\sin 19} = 30.93 \text{ cm}$$

$$y = \frac{14 \times \sin 27}{\sin 19} = 19.52 \text{ cm}$$

Answer 6

$$\cos H = \frac{3.6^2 + 4.2^2 - 5.1^2}{2 \times 3.6 \times 4.2}$$

$$= 0.152$$

$$H = 81.3^\circ$$

This document is a part of a **Mathematics Community Outreach Project** initiated by Shrewsbury School

It may be freely duplicated and distributed, unaltered, for non-profit educational use

In October 2020, Shrewsbury School was voted "**Independent School of the Year 2020**"

© 2025 Number Wonder

Teachers may obtain detailed worked solutions to the exercises by email from MHHShrewsbury@Gmail.com