

9.4.2 Solutions to 9.3 Homework

GCSE Mathematics Non-Right Angled Trigonometry

Answer 1

$$\begin{aligned}\cos B &= \frac{14^2 + 6^2 - 9^2}{2 \times 14 \times 6} \\ &= 0.899 \\ B &= 26^\circ\end{aligned}$$

Answer 2

$$\begin{aligned}c^2 &= 7^2 + 15^2 - 2 \times 7 \times 15 \times \cos 147 \\ &= 450.19 \\ c &= 21.22 \text{ cm}\end{aligned}$$

Answer 3

(i) Sketch of triangle

(ii)

$$b = \frac{5.6 \times \sin 98}{\sin 45} = 7.84 \text{ km}$$

Answer 4

$$\begin{aligned}\cos B &= \frac{4.3^2 + 5.8^2 - 6.2^2}{2 \times 4.3 \times 5.8} \\ &= 0.274 \\ B &= 74.1^\circ\end{aligned}$$

Answer 5

$$\begin{aligned}x^2 &= 5.4^2 + 7.3^2 - 2 \times 5.4 \times 7.3 \times \cos 42^\circ \\ &= 23.87 \\ x &= 4.9 \text{ km} \\ \therefore \text{Total Distance} &= 17.6 \text{ km}\end{aligned}$$

Answer 6

$$\begin{aligned}g &= \frac{8.4 \times \sin 13}{\sin 135} = 2.7 \text{ cm} \\ h &= \frac{8.4 \times \sin 32}{\sin 135} = 6.3 \text{ cm}\end{aligned}$$

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