

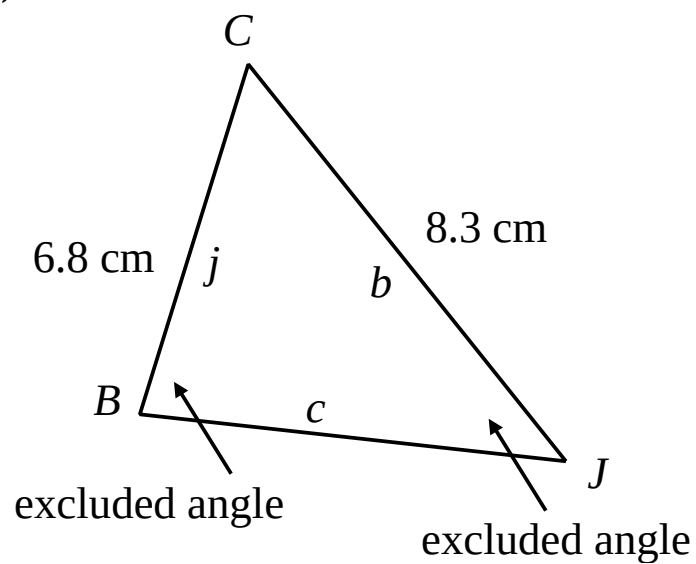
8.3 Answers

GCSE Mathematics Non-Right Angled Trigonometry

8.3.1 Solutions to 8.1 Examples

Answer 1

(i) and (ii)



(iii)

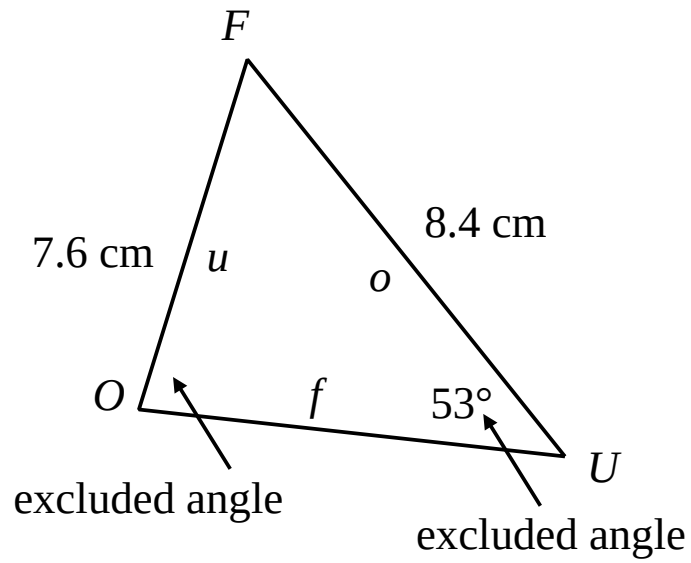
$$\frac{j}{\sin J} = \frac{c}{\sin C} = \frac{b}{\sin B}$$

(iv)

$$\frac{\sin J}{j} = \frac{\sin C}{c} = \frac{\sin B}{b}$$

Answer 2

(i) and (ii)



(iii)

$$\frac{\sin U}{u} = \frac{\sin F}{f} = \frac{\sin O}{o}$$

(iv)

$$\boxed{\frac{\sin U}{u}} = \frac{\sin F}{f} = \frac{\sin \textcircled{O}}{o}$$

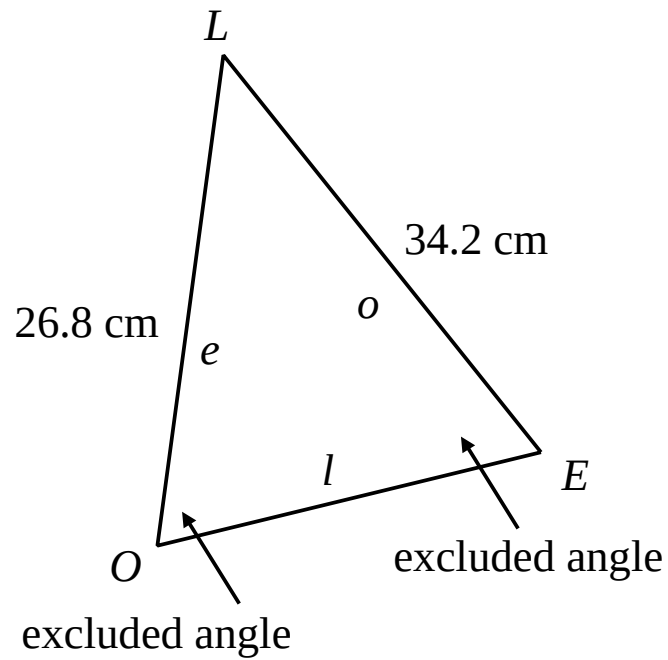
(v)

$$\begin{aligned}\frac{\sin O}{8.4} &= \frac{\sin 53}{7.6} \\ \sin O &= \frac{8.4 \times \sin 53}{7.6} \\ &= 0.883 \\ O &= \arcsin 0.883 \\ &= 62.0^\circ\end{aligned}$$

8.3.2 Solutions to 8.2 Exercise

Answer 1

(i) and (ii)



(iii)

$$\frac{e}{\sin E} = \frac{l}{\sin L} = \frac{o}{\sin O}$$

(iv)

$$\frac{\sin E}{e} = \frac{\sin L}{l} = \frac{\sin O}{o}$$

Answer 2

I'd use The Sine Rule (upside down version) to find an excluded angle if I knew....

(c) ☐ The length of two sides and one excluded angle.

Answer 3

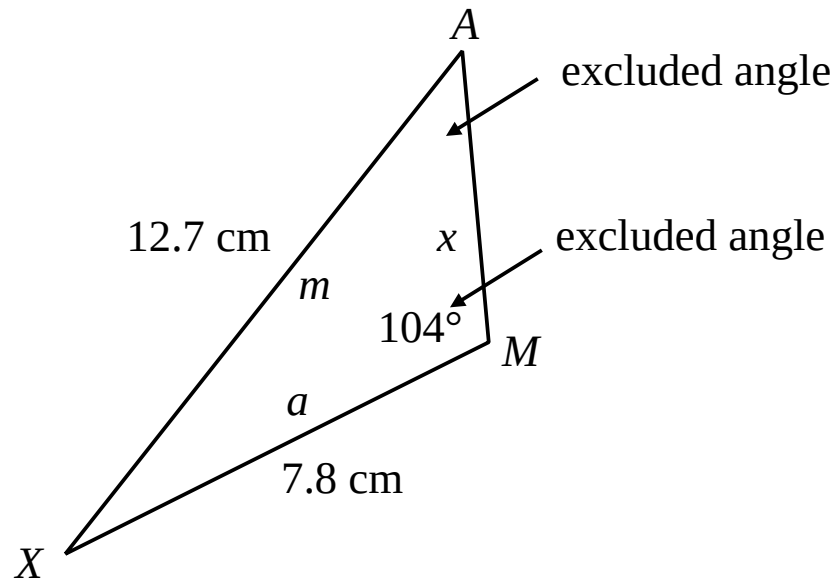
- | | | | |
|-------|-------|------|-------|
| (i) | 19.5° | (ii) | 56.9° |
| (iii) | 43.3° | (iv) | 29.5° |
| (v) | 32.1° | (vi) | 39.0° |

Answer 4

- | | | | |
|-------|-------|------|-------|
| (i) | 46.5° | (ii) | 17.8° |
| (iii) | 23.5° | (iv) | 72.6° |

Answer 5

(i) (ii) and (iii)



(iv)

$$\frac{\sin M}{m} = \frac{\sin A}{a} = \frac{\sin X}{x}$$

(v)

$$\boxed{\frac{\sin M}{m}} = \frac{\sin A}{a} = \frac{\sin X}{x}$$

$$\frac{\sin A}{7.8} = \frac{\sin 104}{12.7}$$

$$\sin A = \frac{7.8 \times \sin 104}{12.7}$$

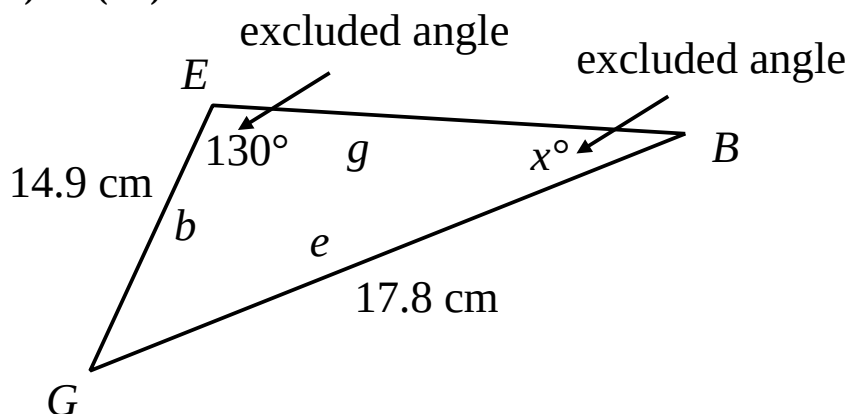
$$= 0.596$$

$$A = \arcsin 0.596$$

$$= 36.6^\circ$$

Answer 6

(i) (ii) and (iii)



(iv)

$$\frac{\sin B}{b} = \frac{\sin E}{e} = \frac{\sin G}{g}$$

(v)

$$\frac{\sin B}{b} = \frac{\sin E}{e} = \frac{\sin G}{g}$$

$$\frac{\sin B}{14.9} = \frac{\sin 130}{17.8}$$

$$\sin B = \frac{14.9 \times \sin 130}{17.8}$$

$$= 0.641$$

$$A = \arcsin 0.641$$

$$= 39.9^\circ$$

Answer 8

$$x = 81.5^\circ$$

Answer 9

$$Y = \arcsin \left(\frac{27.5 \times \sin 24}{13.2} \right)$$

$$= 57.9^\circ$$

$$\therefore X = 98.1^\circ$$