

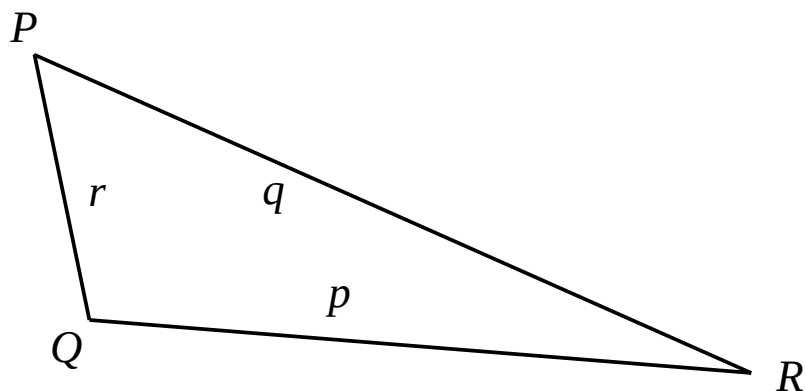
7.5 Answers

GCSE Mathematics Non-Right Angled Trigonometry

7.5.1 Solutions to 7.3 Exercise

Answer 1

(i)

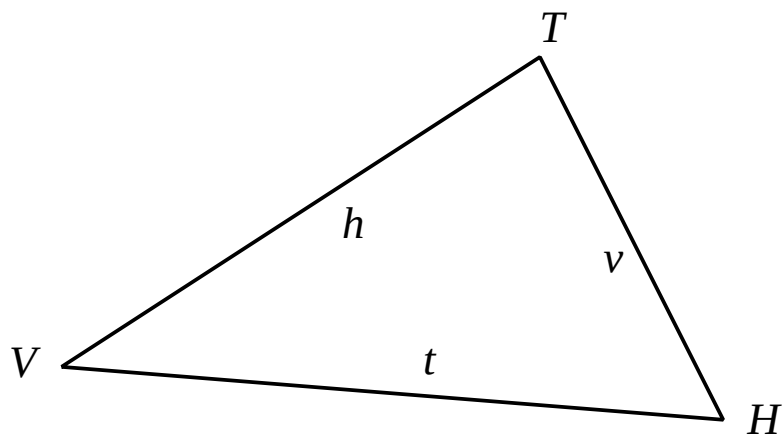


(ii)

$$\frac{p}{\sin P} = \frac{q}{\sin Q} = \frac{r}{\sin R}$$

Answer 2

(i)



(ii)

$$\frac{h}{\sin H} = \frac{t}{\sin T} = \frac{v}{\sin V}$$

Answer 3

(i) 173

(ii) 13.6

(iii) 1.17

(iv) 3890

Answer 4

(i) 5.71

(ii) 222

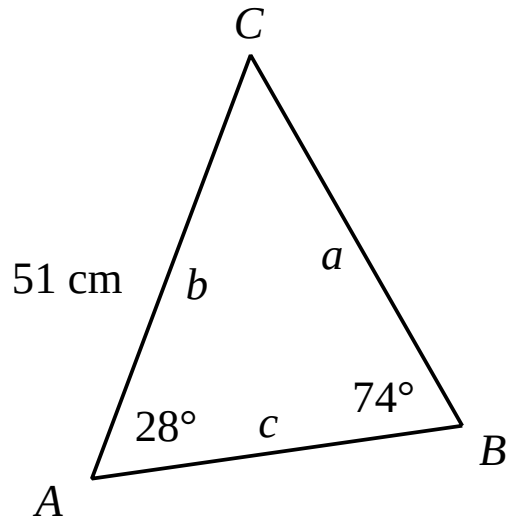
(iii) 2350

(iv) 54.6

Answer 5

(i) $\angle C = 78^\circ$

(ii)



(iii)

$$\frac{\textcircled{a}}{\sin A} = \frac{\boxed{b}}{\sin B} = \frac{c}{\sin C}$$

$$\frac{a}{\sin 28} = \frac{51}{\sin 74}$$

$$a = \frac{51 \times \sin 28}{\sin 74}$$

$$= 24.9 \text{ cm (3 significant figures asked for)}$$

(iv)

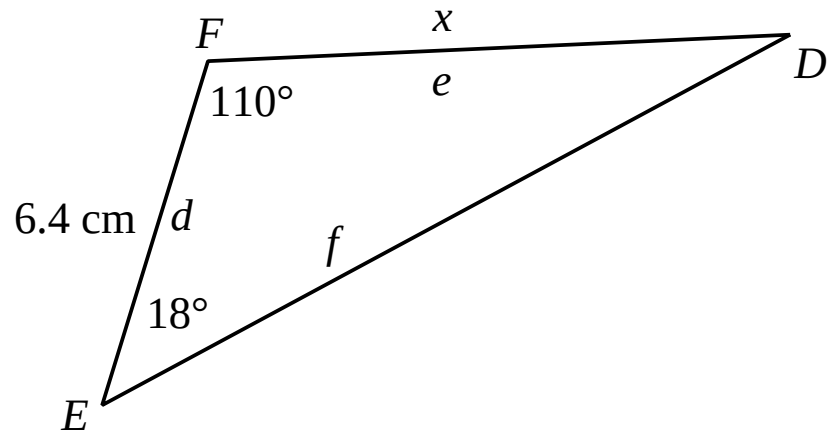
$$\text{Area } \Delta = \frac{1}{2} ab \sin C \quad (C \text{ is the included angle})$$

$$= \frac{1}{2} \times 24.9 \times 51 \times \sin 78$$

$$= 621 \text{ cm}^2$$

Answer 6

(i) $\angle D = 52^\circ$

(ii)**(iii)**

$$\boxed{\frac{d}{\sin D}} = \frac{\textcircled{e}}{\sin E} = \frac{f}{\sin F}$$

$$\frac{e}{\sin 18} = \frac{6.4}{\sin 52}$$

$$e = \frac{6.4 \times \sin 18}{\sin 52}$$

$$= 2.51 \text{ cm (3 significant figures asked for)}$$

(iv)

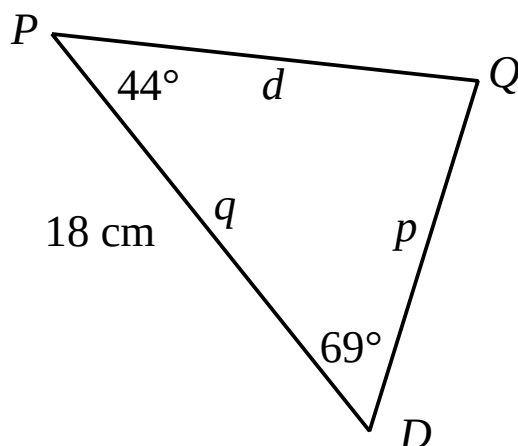
$$\text{Area } \Delta = \frac{1}{2} de \sin F \quad (\text{F is the included angle})$$

$$= \frac{1}{2} \times 6.4 \times 2.51 \times \sin 110$$

$$= 7.55 \text{ cm}^2$$

Answer 7

(i) $\angle Q = 67^\circ$

(ii)**(iii)**

$$\frac{\textcircled{p}}{\sin P} = \frac{d}{\sin D} = \boxed{\frac{q}{\sin Q}}$$

$$\frac{p}{\sin 44} = \frac{18}{\sin 67}$$

$$p = \frac{18 \times \sin 44}{\sin 67}$$

$$= 13.6 \text{ cm (3 significant figures asked for)}$$

(iv)

$$\boxed{\frac{p}{\sin P}} = \frac{\textcircled{d}}{\sin D} = \boxed{\frac{q}{\sin Q}}$$

$$\frac{d}{\sin 69} = \frac{18}{\sin 67}$$

$$d = \frac{18 \times \sin 69}{\sin 67}$$

$$= 18.3 \text{ cm (3 significant figures asked for)}$$

(v)

$$\text{Area } \Delta = \frac{1}{2} pd \sin Q \quad (\text{alternatives can be used})$$

$$= \frac{1}{2} \times 13.6 \times 18.3 \times \sin 67$$

$$= 114.5 \text{ cm}^2$$