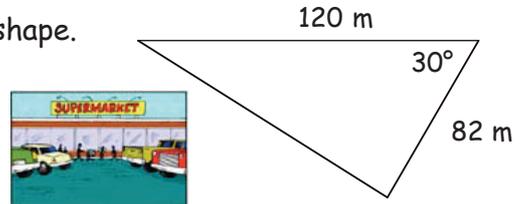


You may use a calculator in this assessment, but you must **show all working**.  
Unless otherwise instructed, answer correct to **3 significant figures**.

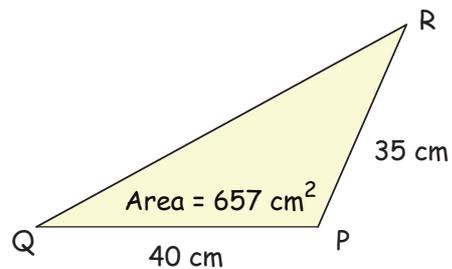
1. The car park at Troscos Supermarket is triangular in shape.  
The management decide it needs resurfacing.  
Calculate the exact cost of doing this if they are quoted a price of £8 per square metre.



2.  $28^\circ$   $92^\circ$   
USA  $18\text{ cm}$   
 $30\text{ cm}$

This is a replica of USA's World Cup soccer pennant.  
Calculate the area of the pennant.

3. The area of a triangle PQR is  $657\text{ cm}^2$ .  
QP = 40 cm and PR = 35 cm.  
Calculate the size of obtuse angle QPR.



4.  $72\text{ cm}$   
 $25\text{ cm}$   $117^\circ$   
A B C

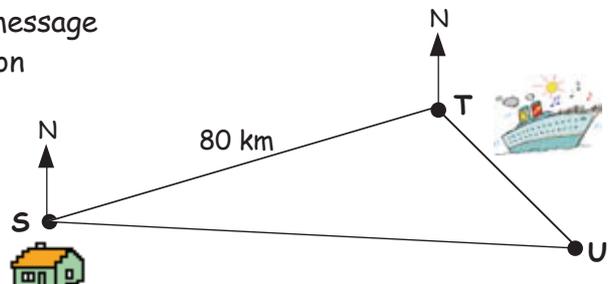
Find the size of acute  $\angle BCA$  in  $\triangle ABC$ .

5. A coastguard station at **S** picks up a distress message from a ship at **T** which is 80 kilometres away on a bearing of  $070^\circ$ .

The ship leaves **T** and travels on a bearing of  $155^\circ$  towards **U**.

(a) Prove that  $\angle STU = 95^\circ$ .

(A sketch will help)



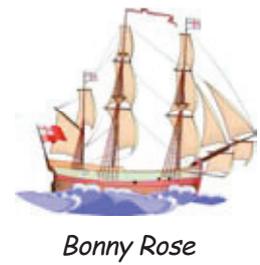
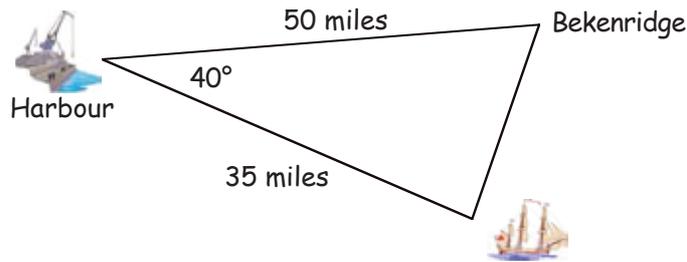
The coastguard station sends a rescue craft to intercept the ship at **U**.

The bearing of **U** from **S** is  $115^\circ$ .

(b) What distance, to the nearest km, does the rescue craft have to travel to reach **U**?



6.



The *Bonny Rose* leaves harbour bound for Bekenridge 50 miles away.

Due to an error in its navigation system, it steers in a straight line but  $40^\circ$  off course.

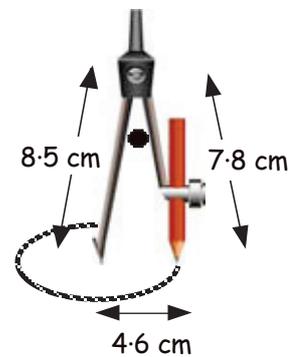
It travels 35 miles before the error is noticed.

How far from Bekenridge is the *Bonny Rose* when the error is discovered ?

7. The pair of compasses shown opposite is used to draw the circle which has a radius of 4.6 cm.

The legs of the compasses measure 8.5 cm and 7.8 cm.

Calculate the angle marked ● which one leg makes with the other.



8. The idea in the computer game below is to position the two men so that they can shoot the alien as he appears from the spaceship.

In a frame from one such game, the alien was exterminated when :-

- the two men were standing 30 metres apart
- the angle of elevation of Bob's gun was  $53^\circ$
- the angle of elevation of Joe's gun was  $62^\circ$ .



Calculate the height ( $H$  m) of the alien above the spaceship when he was hit.

