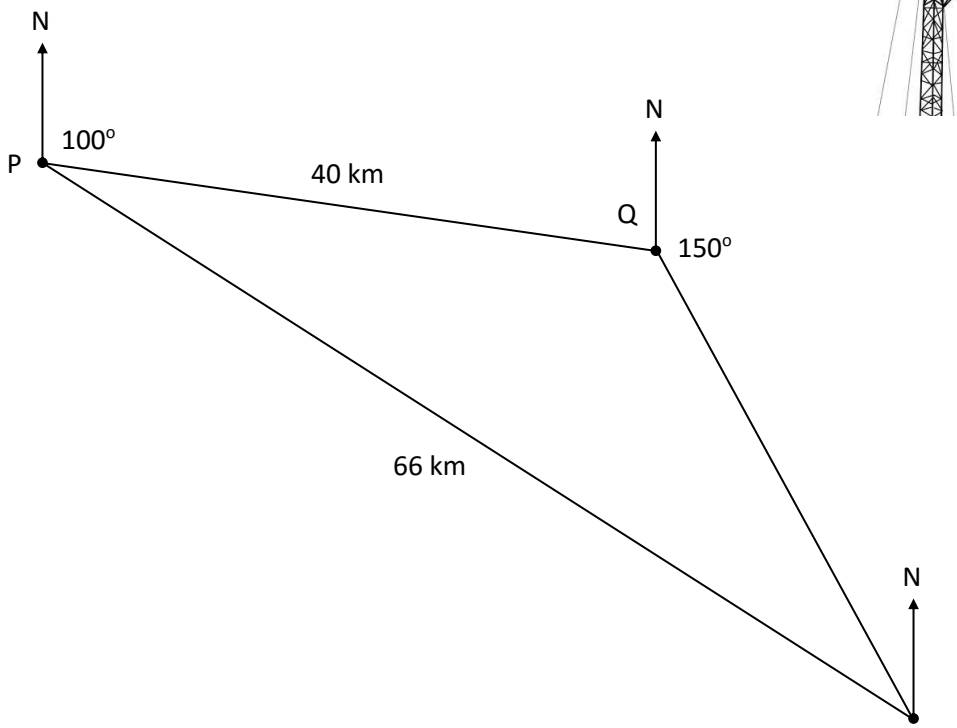
EXAM QUESTIONS involving BEARINGS and TRIGONOMETRY RULES

1. The diagram below, which is not drawn to scale, represents the positions of three mobile phone masts.
Mast Q is on a bearing of 100° from mast P and is 40km away.
The bearing of mast R from mast Q is 150°.
Masts P and R are 66km apart.



(a) Use the information in the diagram to establish the size of angle PQR.

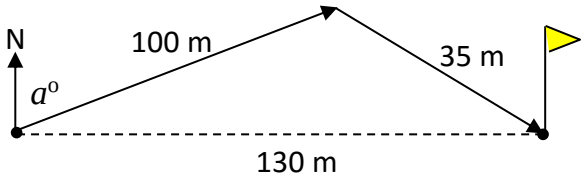
(b) Hence find the bearing of mast P **from** mast R.

2. A par 3 hole on a golf course the tee is a distance of 130 metres due west from the pin.

On his first shot, Bruce hits the ball 100 metres but not at the correct angle.

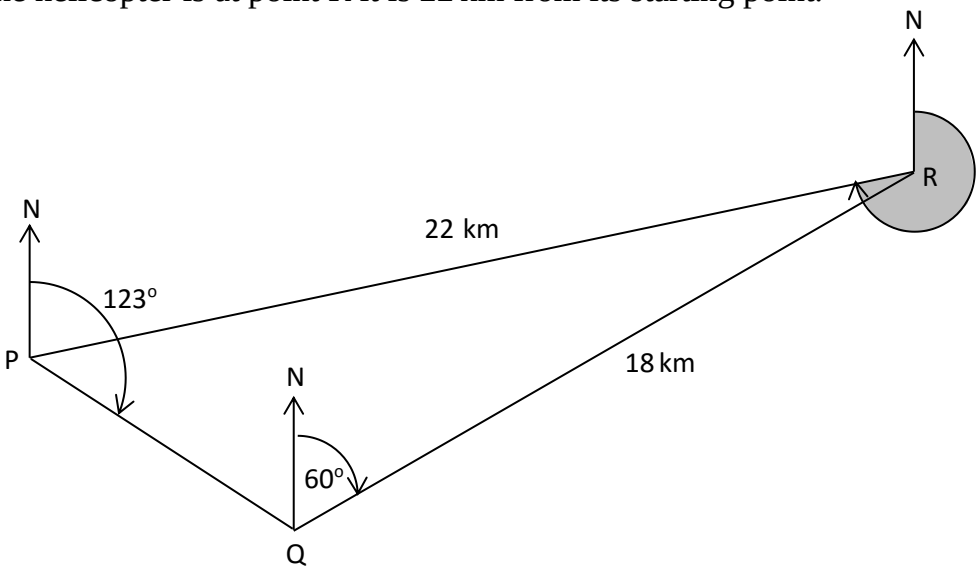
On his second shot he hits the ball 35 metres and gets it in the hole.

On what bearing, a^o, did he hit his first stroke?



3. A helicopter sets out from its base P and flies on a bearing of 123° to point Q where it changes course to 060° and flies 18 km to point R.

When the helicopter is at point R it is 22 km from its starting point.

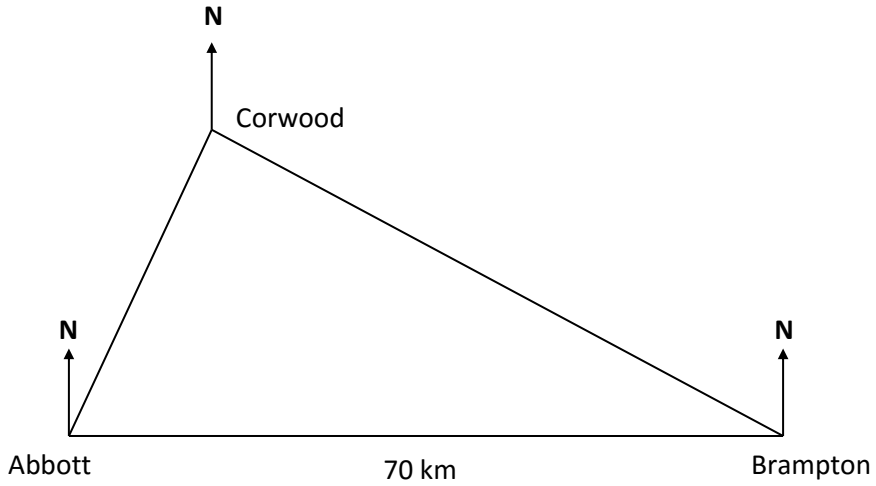


(a) Find the size of angle PQR.

(b) Calculate the bearing on which the helicopter must fly to return directly to its base i.e. the shaded angle in the diagram.

Give answers to the nearest whole number throughout your calculations.

4. Brampton is 70 kilometres due east of Abbott.
The bearing of Corwood from Abbott is 015° and from Brampton is 290°.



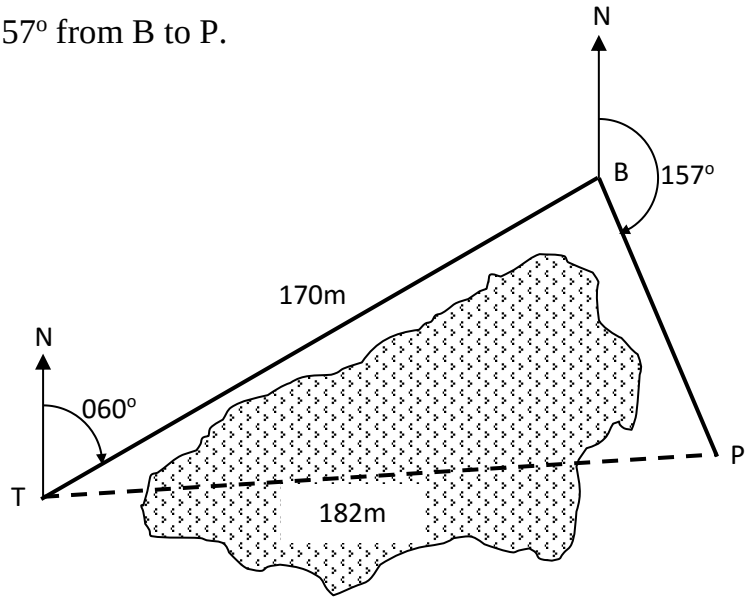
(a) Make a neat copy of the diagram and fill in all three angles inside the triangle.

(b) Calculate the distance between Corwood and Brampton, to the nearest kilometre.

5. The diagram shows part of a golf course where players have to get the ball from the tee (T) to the pin (P).

They can either play one stroke across the lake or play 1 stroke from T to B then another from B to P which avoids the lake.

Harry decides to take the 2 stroke option and hits his first shot on a bearing of 060º or a distance of 170metres. For his second shot he hits the ball on a bearing of 157º from B to P.

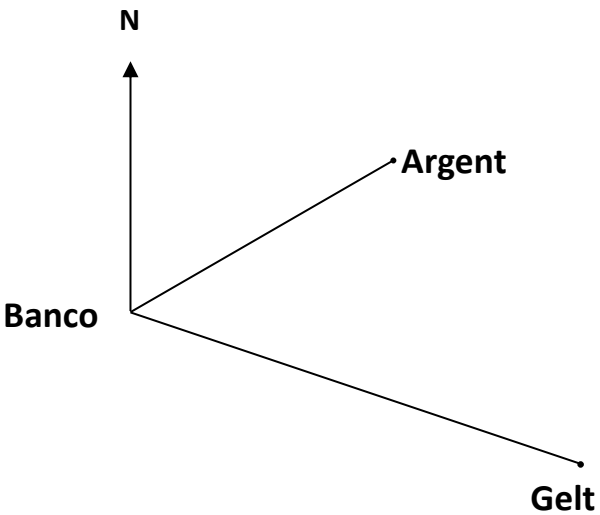


(a) Calculate the size of angle TBP.

The distance TP is 182 metres. David decided to attempt to hit his ball across the lake.

(b) Calculate the bearing on which he would have to hit the ball to achieve this.

6.



Two ships, the Argent and the Gelt leave port Banco at the same time.

The Argent follows a course of 045º for 20 km and the Gelt travels on a course of 108º for 30 km.

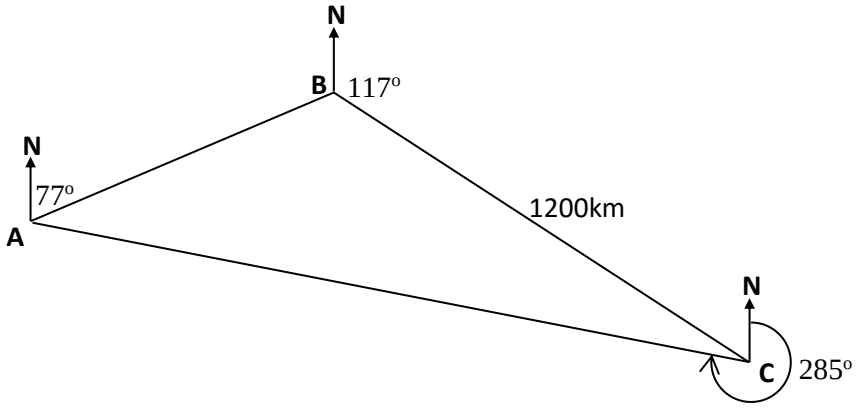
Calculate the distance between the two ships.

7. A ship's mate is planning the course for a voyage.

The course is shown in the diagram below.

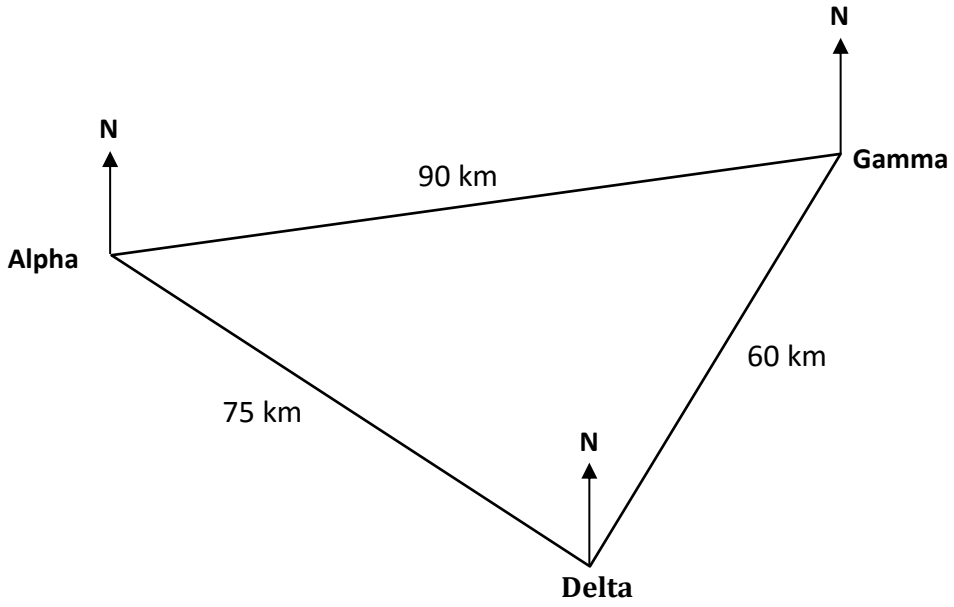
He knows that he has to sail from Port A to Port B on a bearing of 077º and from there to Port C on a bearing of 117º for 1200 km.

In order to return to port A the ship has to sail on a bearing of 285º.



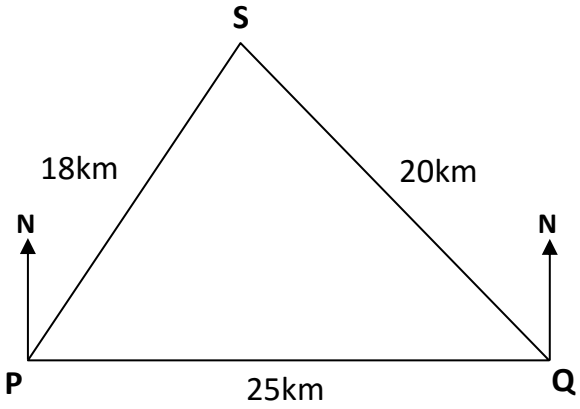
Calculate how far the ship will have to sail to return to its starting point. i.e. the distance AC in the diagram.

8. Three oil platforms, Alpha, Gamma and Delta are situated in the North Sea as shown in the diagram below.
The distances between the oil platforms are shown in the diagram.



If the bearing of Delta from Alpha is 125º, what is the bearing of Gamma from Alpha?

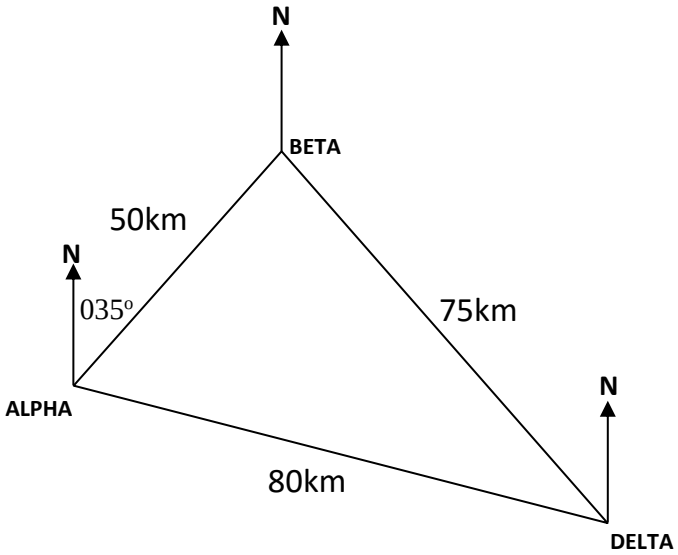
9. Two coastguard stations, P and Q, are 25 km apart. Q is due East of P. A ship, S, is at a distance of 18 km from P and 20 km from Q.



(a) Calculate the size of angle SPQ.

(b) Hence calculate the bearing of the ship S from station P.

10. The diagram below shows the positions of three radar stations Alpha, Beta and Delta. The bearing of Beta from Alpha is 035°.



Calculate the bearing of Delta from Alpha.

Answers

1. **(a)** 130^o **(b)** 302^o **2.** 081^o

3. **(a)** 117^o **(b)** 256^o

4. **(a)** Abbott: 75^o Brampton: 20^o Corwood: 85^o **(b)** 68km

5. **(a)** 83^o **(b)** 089^o **6.** 27·5km

7. 1 643km **8.** 084^o **9.** **(a)** 52^o **(b)** 038^o

10. 101^o