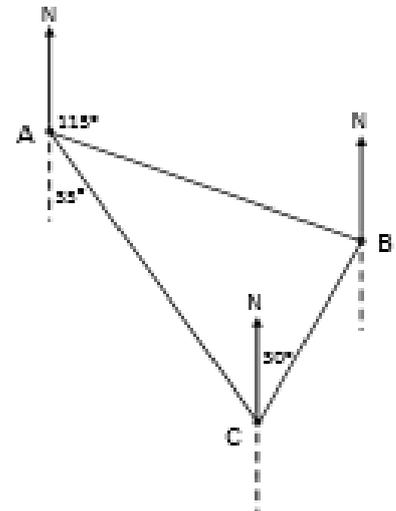## BEARINGS with TRIGONOMETRY RULES
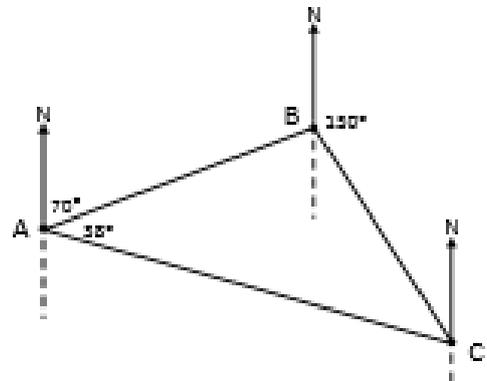
1. **(a)** Copy the bearing diagram opposite fill in as many angles as you can.

   (b) Now answer the following questions .....

   What is the bearing of ... **(i)** B from A

   (ii) A from B

   (iii) C from B

   (iv) A from C

   (v) C from A

   (vi) B from C

2. Repeat question 1. for this bearing diagram.

3. A ship sails from harbour H on a bearing of 084° for 340km until it reaches point P. It then sails on a bearing of 210° for 160km until it reaches point Q.

   (a) Calculate the distance between point Q and the harbour.

   (b) On what bearing must the ship sail to return directly to the harbour from Q?
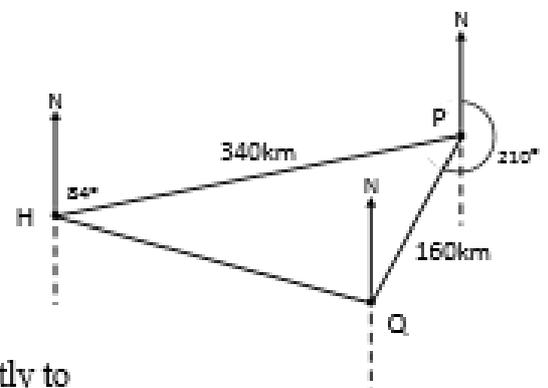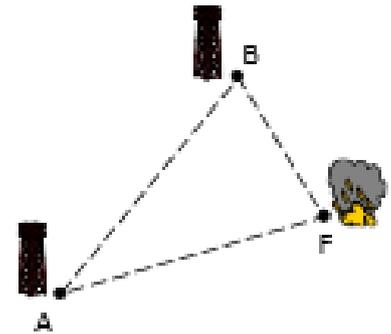
4. A and B represent two forest look-out towers.

    A is 5km and on a bearing of 220° from B.

    A forest fire is sighted at F, on a bearing of 070° from A
   and 150° from B.

    160

    A fire-fighting helicopter leaves A for F. What distance does this
    helicopter have to travel to reach the fire?

5. A surveyor is walking due west when he comes to
    a marsh. To avoid the marsh he turns at P and walks
    for 60 metres on a bearing of 215° and then for 85
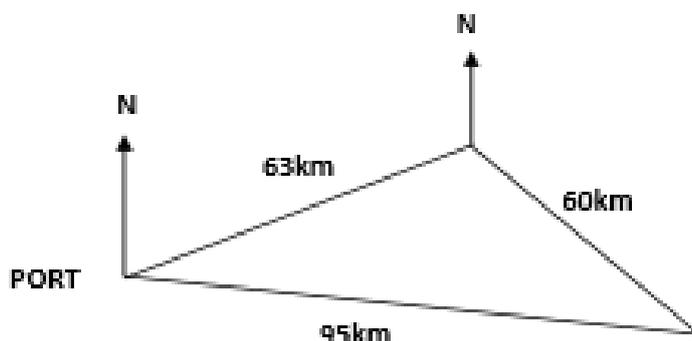   bearing of 290°.

    He then calculates the distance PR, the direct distance
    across the marsh. What answer should he get?
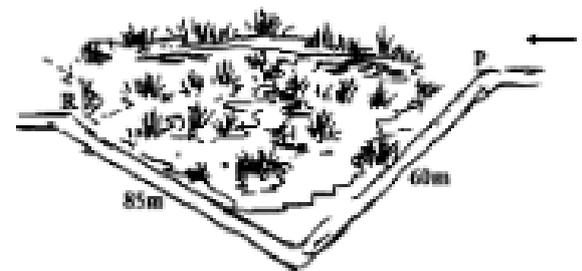
6. Two ships leave Liverpool at the same time. One of them travels north-west at an average
    speed of 10·5 km/h while the other travels at an average speed of 14 km/h on a bearing of
    280°.

    How far apart are these ships after 2 hours?

7. A ship leaves a port on a bearing of 073° and sails 63km. The ship then changes course
    and sails a further 60km on a bearing of 110° where it anchors. When it anchors it is 95km
    from the port. Calculate the bearing of the ship from the port at this point.

8. A ship's captain is plotting a course for the next voyage.

He knows that he has to sail from Port D to port E on a bearing of 067° for a distance of 800km and from there to Port F on a bearing of 123°.

His course is shown in the diagram below.
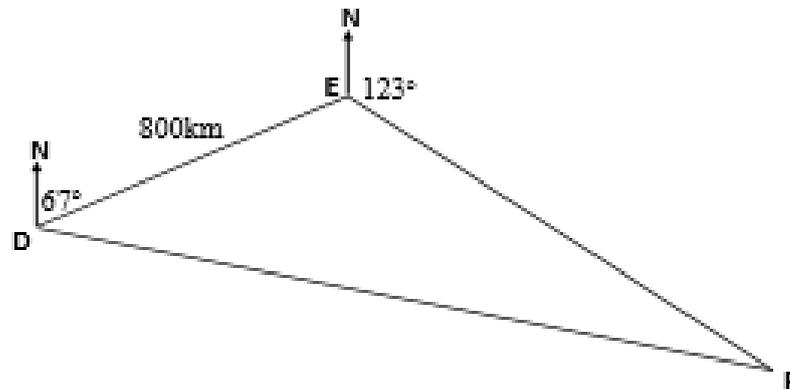
(a) Make a copy of the diagram and calculate the size of angle DEF.

(b) New instructions come through which inform the captain that he has to sail directly from Port D to Port F, a distance of 1750km.

Calculate the bearing on which the ship should sail in order to carry out these instructions. Give the bearing to the nearest degree.

9. A ship is at position A. Lighthouse L is on a bearing of 050° from the ship.
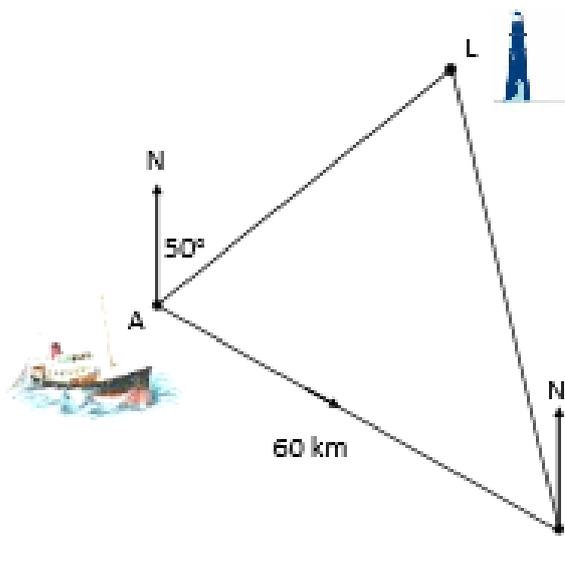
The ship then travels 60 kilometres on a bearing of 130° to position B.

From position B the captain now observes the lighthouse on a bearing of 340°.

Calculate the distance between the ship and the lighthouse when the ship is at position B.

10. Two students, Ally and Cameron are playing football and at one point they are in the positions shown in the diagram. Ally (A) is 30m due west of Cameron (C).
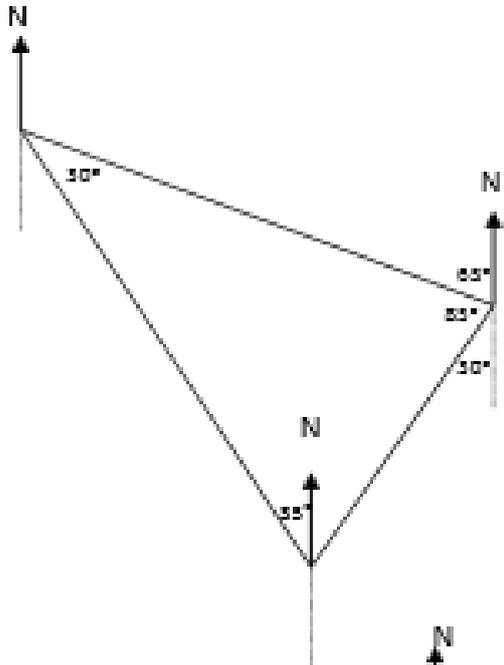
They are both facing North.
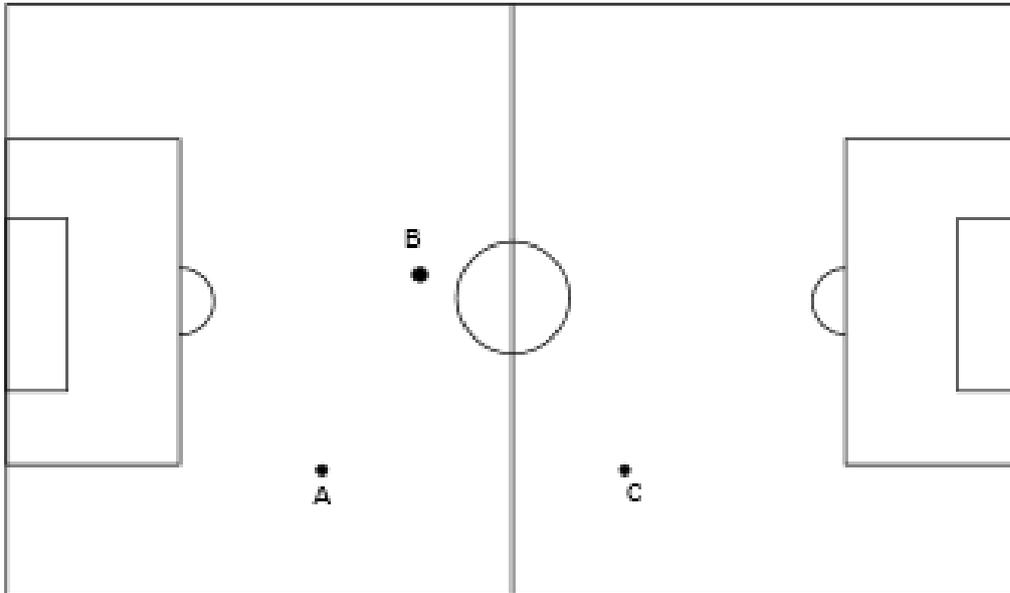
The ball (B) is on a bearing of 026° from A and on a bearing of 312° from C.
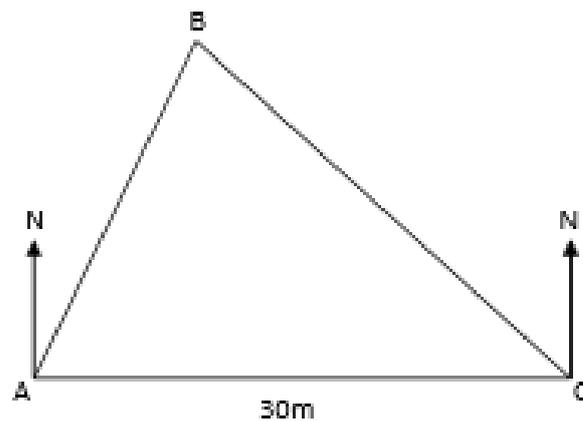
(a) Make a copy of the above diagram and mark the sizes of the 3 angles in the triangle.

(b) Calculate how far Cameron is away from the ball.

BEARINGS with TRIGONOMETRY RULES

1.   (a)

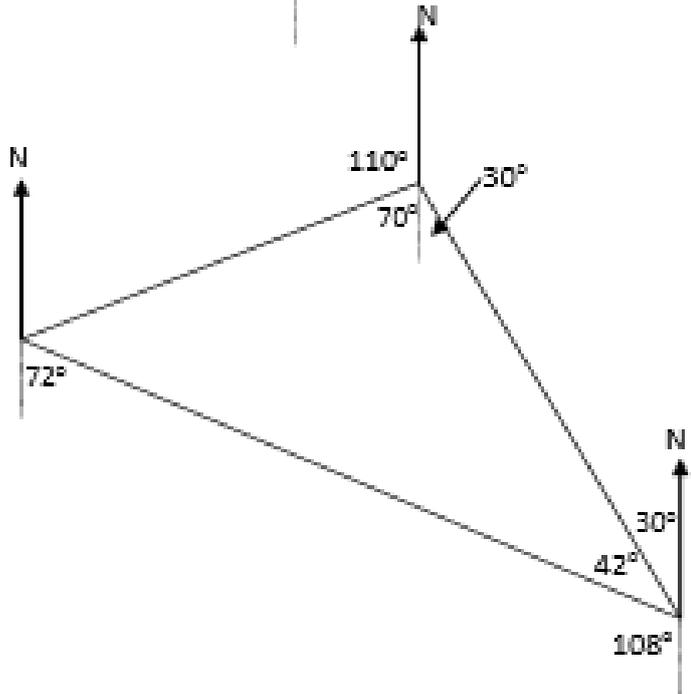   (b)   (i)   115°

         (ii)   295°

         (iii)   210°

         (iv)   325°

         (v)   145°

         (vi)   030°

2.   (a)

         (i)   070°

         (ii)   250°

         (iii)   150°

         (iv)   288°

         (v)   108°

         (vi)   330

3.   (a)   278km   (b)   292°   4.   4·77km

5.   116·0m   6.   16·2km   7.   249°

8.   (a)   124°   (b)   101°   9.   62·9km

10.   (a)   A: 64°   B: 74°   C: 42°   (b)   28m