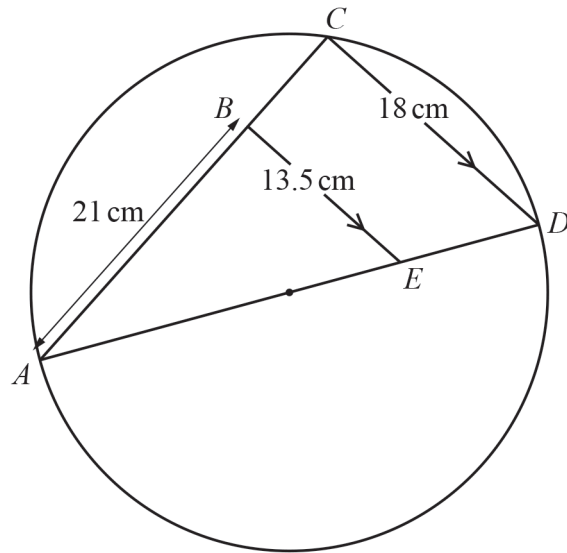


1



NOT TO  
SCALE

$C$  lies on a circle with diameter  $AD$ .

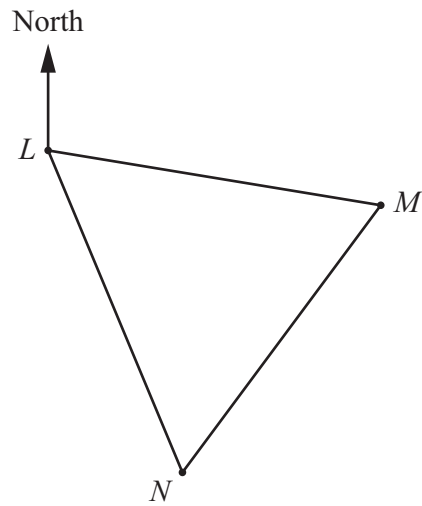
$B$  lies on  $AC$  and  $E$  lies on  $AD$  such that  $BE$  is parallel to  $CD$ .

$AB = 21$  cm,  $CD = 18$  cm and  $BE = 13.5$  cm.

Work out the radius of the circle.

..... cm [5]

[Total: 5]



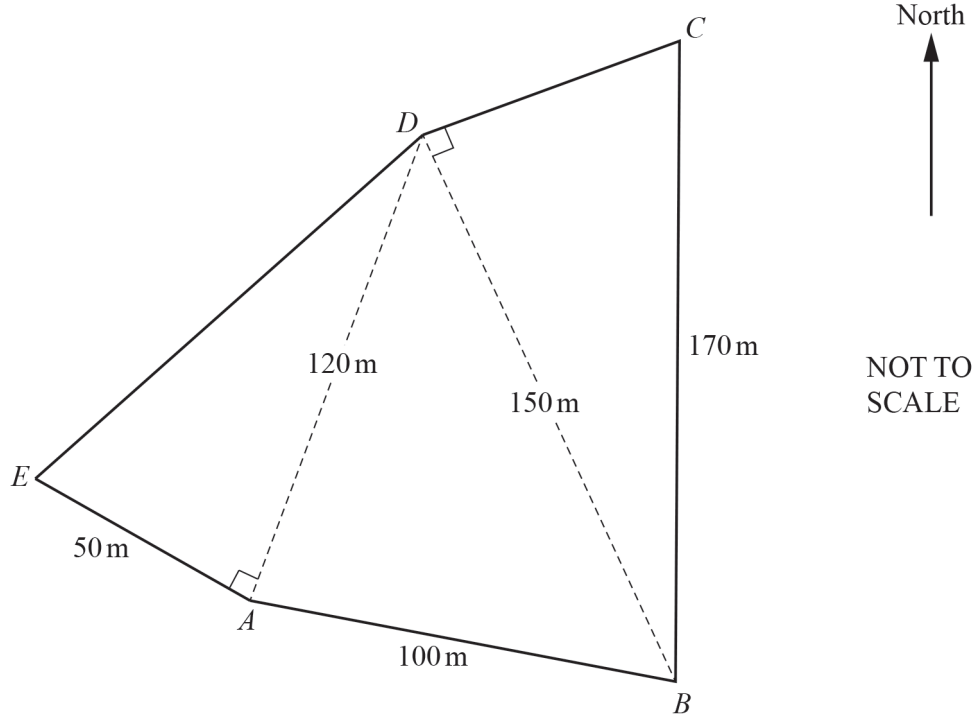
NOT TO  
SCALE

On a map, the positions of the towns  $L$ ,  $M$  and  $N$  form an equilateral triangle.  
The bearing of  $M$  from  $L$  is  $103^\circ$ .

Work out the bearing of  $L$  from  $N$ .

..... [2]

[Total: 2]



The diagram shows a field  $ABCDE$ .

(a) Calculate the perimeter of the field  $ABCDE$ .

..... m [4]

(b) Calculate angle  $ABD$ .

Angle  $ABD =$  ..... [4]

- (c) (i) Calculate angle  $CBD$ .

Angle  $CBD = \dots\dots\dots$  [2]

- (ii) The point  $C$  is due north of the point  $B$ .

Find the bearing of  $D$  from  $B$ .

$\dots\dots\dots$  [2]

- (d) Calculate the area of the field  $ABCDE$ .

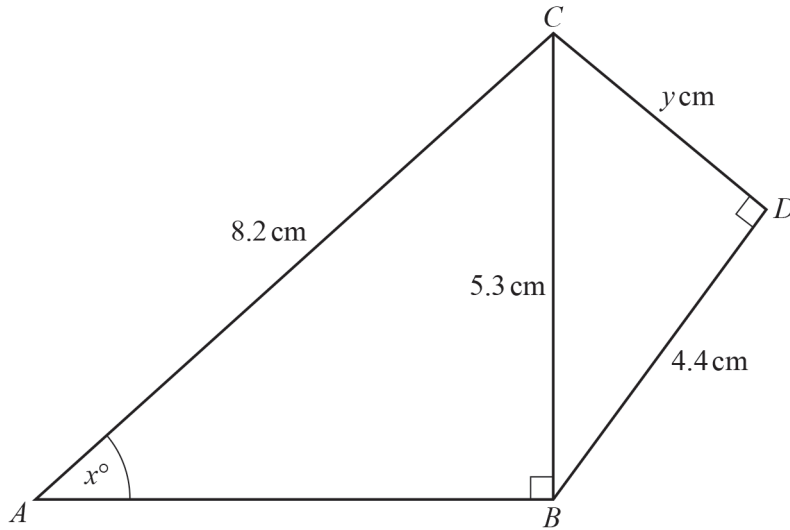
Give your answer in hectares.

[1 hectare = 10 000 m<sup>2</sup>]

$\dots\dots\dots$  hectares [4]

[Total: 16]

4

NOT TO  
SCALE

Triangles  $ABC$  and  $BCD$  are both right-angled triangles.

(a) Calculate the value of  $y$ .

$y = \dots\dots\dots$  [3]

(b) Calculate the value of  $x$ .

$x = \dots\dots\dots$  [2]

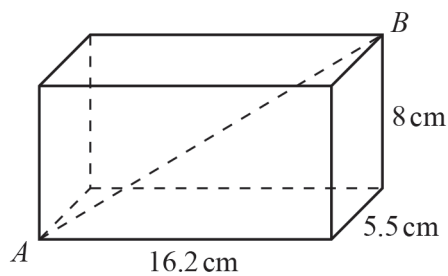
[Total: 5]

5 Solve  $4 \sin x - 1 = 2$  for  $0^\circ \leq x \leq 360^\circ$ .

$x = \dots\dots\dots$  and  $x = \dots\dots\dots$  [3]

[Total: 3]

6



NOT TO  
SCALE

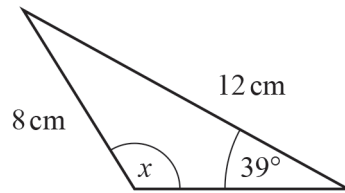
The diagram shows a cuboid with dimensions 5.5 cm, 8 cm and 16.2 cm.

Calculate the angle between the line  $AB$  and the horizontal base of the cuboid.

$\dots\dots\dots$  [4]

[Total: 4]

7



NOT TO  
SCALE

Calculate the **obtuse** angle  $x$  in this triangle.

$x = \dots\dots\dots$  [3]

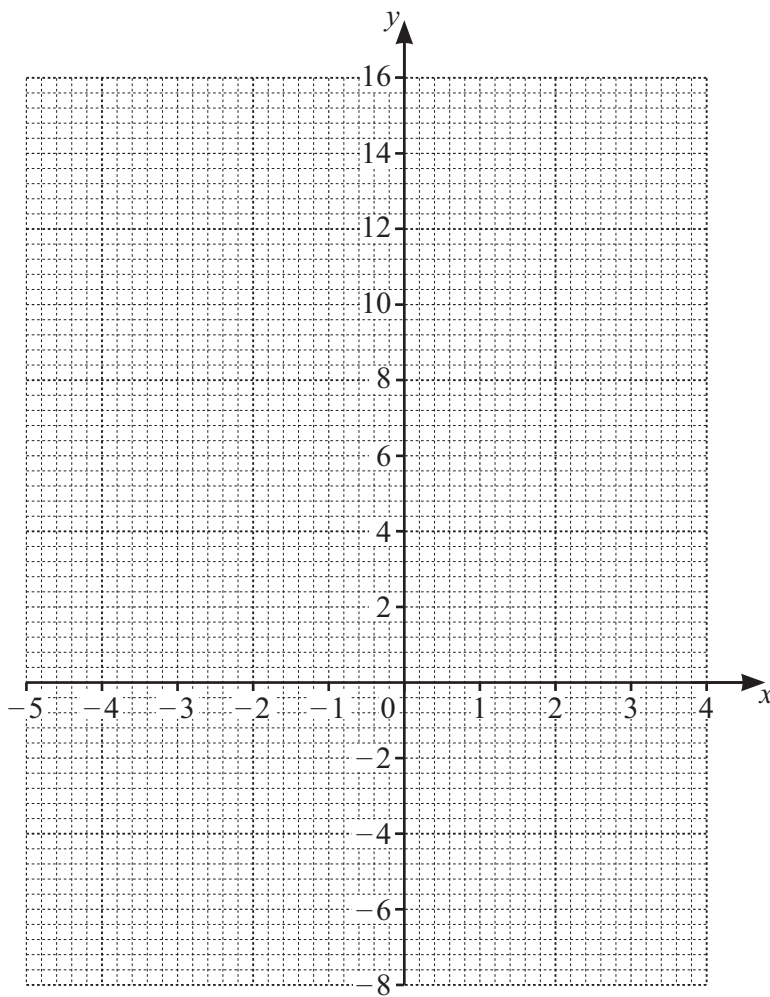
[Total: 3]

8 (a) Complete the table of values for  $y = -x^2 - x + 14$ .

$x$	-5	-4	-3	-2	-1	0	1	2	3	4
$y$			8	12			12	8		

[3]

- 8 (b) On the grid, draw the graph of  $y = -x^2 - x + 14$  for  $-5 \leq x \leq 4$ .



[4]

- (c) (i) Write down the equation of the line of symmetry of the graph.

..... [1]

- (ii) Find the coordinates of the highest point on the graph.

( ..... , ..... ) [1]

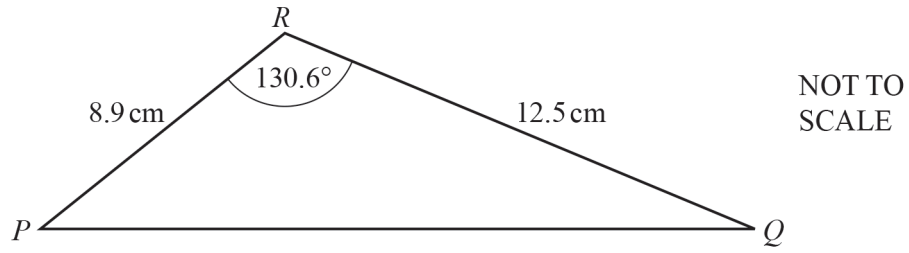
- (d) Use your graph to solve the equation  $-x^2 - x + 14 = -2$ .

$x = \dots\dots\dots$  or  $x = \dots\dots\dots$  [2]

[Total: 11]



9



Calculate the area of triangle  $PQR$ .

.....  $\text{cm}^2$  [2]

[Total: 2]