1 The diagram shows a trapezium *ABCD* in which *AB* and *DC* are parallel.

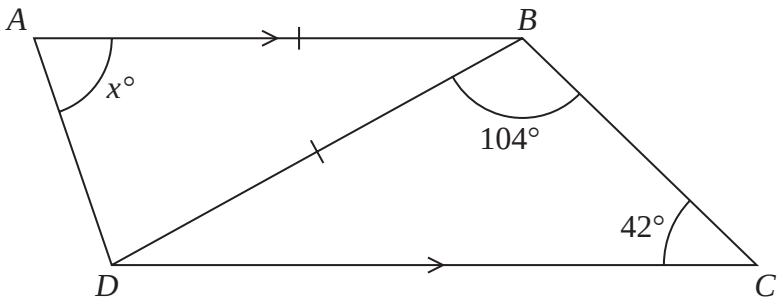


Diagram **NOT** accurately drawn

AB = *DB*

Work out the value of *x*.
Give a reason for each stage of your working.

x = ...

(Total for Question 1 is 4 marks)

2

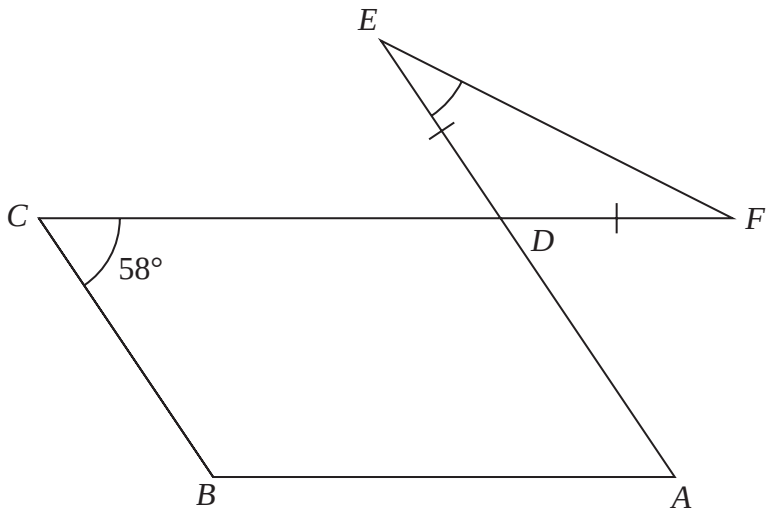


Diagram **NOT** accurately drawn

The diagram shows a parallelogram *ABCD* and an isosceles triangle *DEF* in which *DE* = *DF*

CDF and *ADE* are straight lines.
Angle *BCD* = 58°

Work out the size of angle *DEF*.
Give a reason for each stage of your working.

.....°

(Total for Question 2 is 5 marks)

3

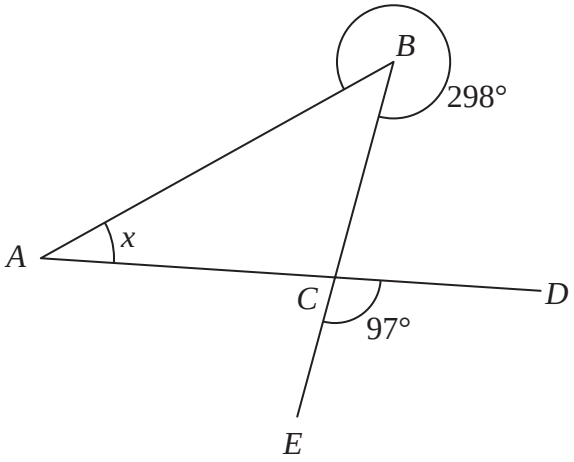


Diagram **NOT** accurately drawn

ABC is a triangle.
D and *E* are points such that *ACD* and *BCE* are straight lines.

reflex angle *ABC* = 298°
angle *ECD* = 97°

Work out the size of angle *x*.
Give a reason for each stage of your working.

x = ...°

(Total for Question 3 is 4 marks)

4

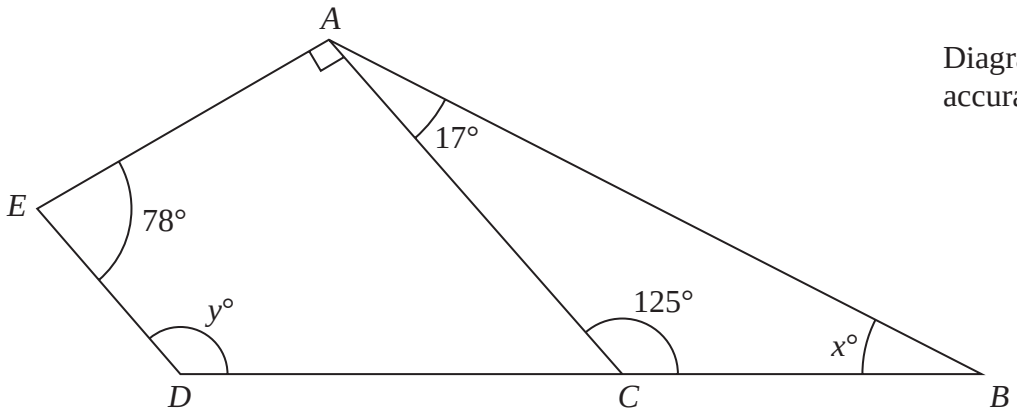


Diagram **NOT** accurately drawn

ABDE is a quadrilateral.
ABC is a triangle.
DCB is a straight line.

(a) (i) Work out the value of *x*.

x = ...

(1)

(ii) Give a reason for your answer.

.....

(1)

(b) Work out the value of *y*.
Give a reason for each stage of your working.

y = ...

(3)

(Total for Question 4 is 5 marks)

5 The diagram shows a square *ABCD* and a regular pentagon *CDEFG*.

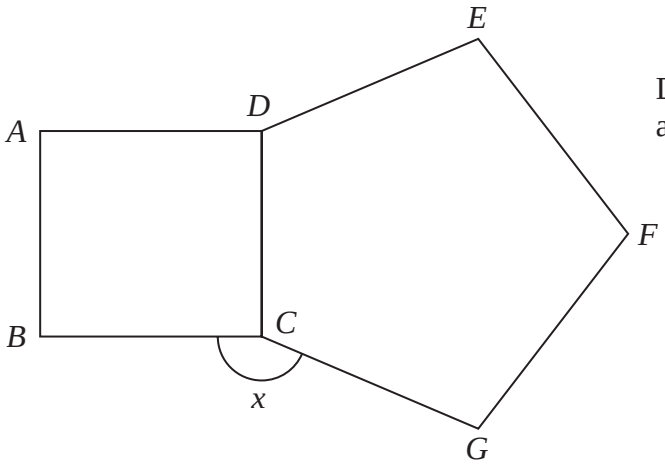


Diagram **NOT** accurately drawn

Work out the size of the angle marked *x*.

.....°

(Total for Question 5 is 3 marks)

6

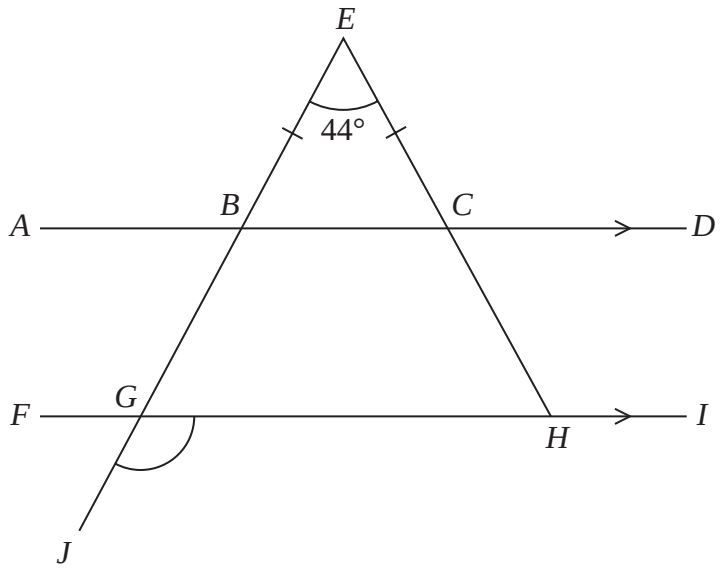


Diagram **NOT** accurately drawn

ABCD and *FGHI* are parallel straight lines.
EBGJ and *ECH* are straight lines.

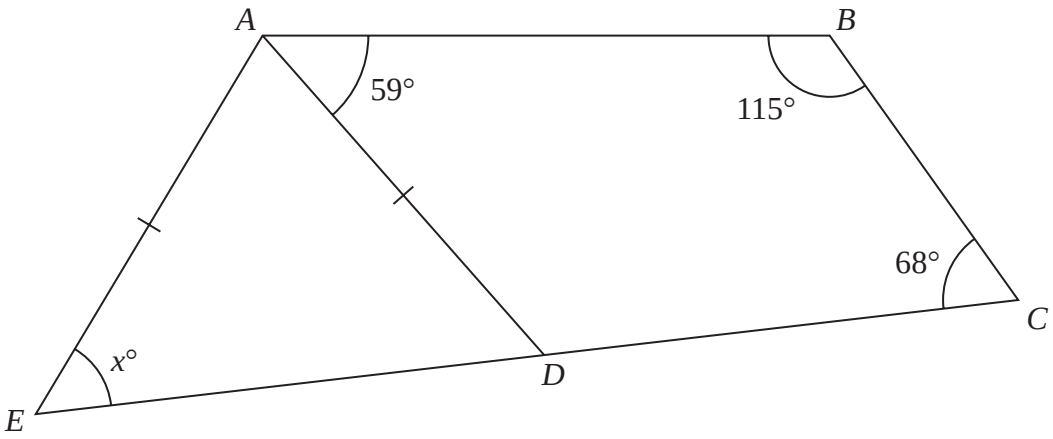
BE = *CE*
Angle *BEC* = 44°

Work out the size of angle *JGH*.
Give a reason for each stage of your working.

.....°

(Total for Question 6 is 5 marks)

7 The diagram shows quadrilateral *ABCD* and isosceles triangle *ADE*, where *AE* = *AD*.



EDC is a straight line.

Work out the value of *x*.
Give a reason for each stage of your working.

x = ...

(Total for Question 7 is 4 marks)

8

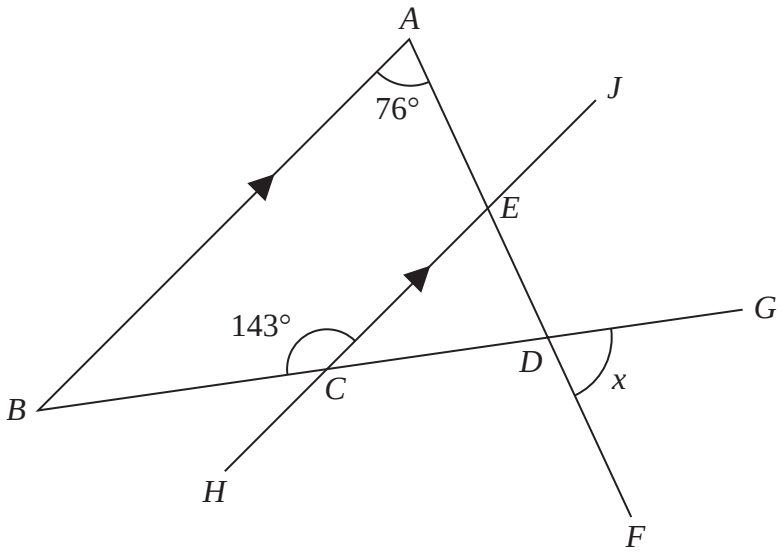


Diagram **NOT** accurately drawn

ABD is a triangle.

AEDF, *BCDG* and *HCEJ* are straight lines.
BA is parallel to *HCEJ*.

Work out the size of the angle marked *x*.

.....°

(Total for Question 8 is 3 marks)

9

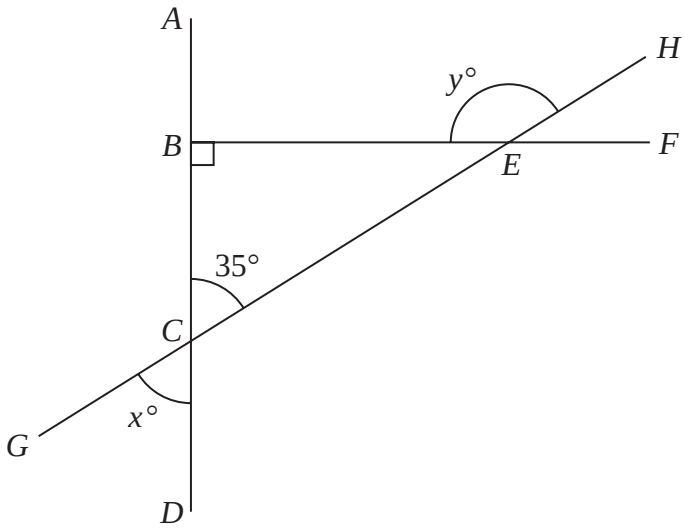


Diagram **NOT** accurately drawn

In the diagram, *BCE* is a right-angled triangle.
ABCD, *BEF* and *GCEH* are straight lines.

Angle *BCE* = 35°

(a) (i) Find the value of x

$x =$ .....

(1)

(ii) Give a reason for your answer.

.....

(1)

(b) (i) Work out the value of y

$y =$ .....

(2)

(ii) Give a reason for your answer.

.....

.....

(1)

(Total for Question 9 is 5 marks)

10

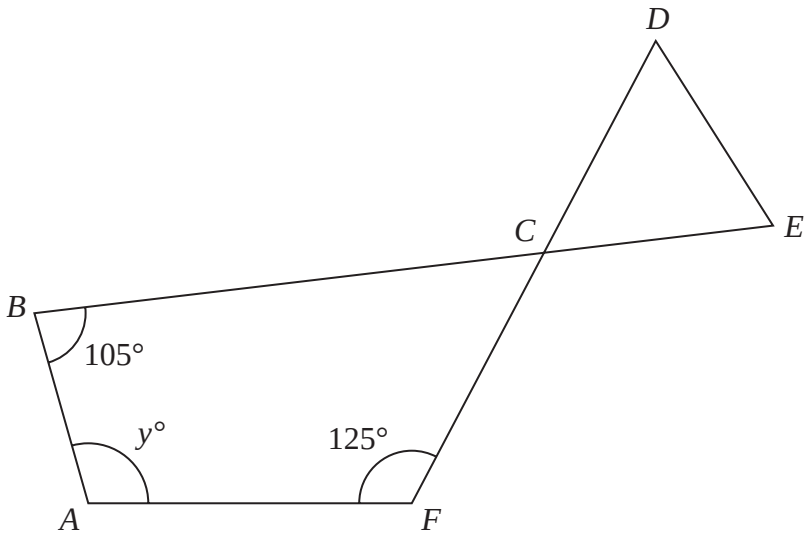


Diagram **NOT** accurately drawn

CDE is an equilateral triangle.
ABCF is a quadrilateral.

BCE and *DCF* are straight lines.

(b) Work out the value of *y*
You must show your working.

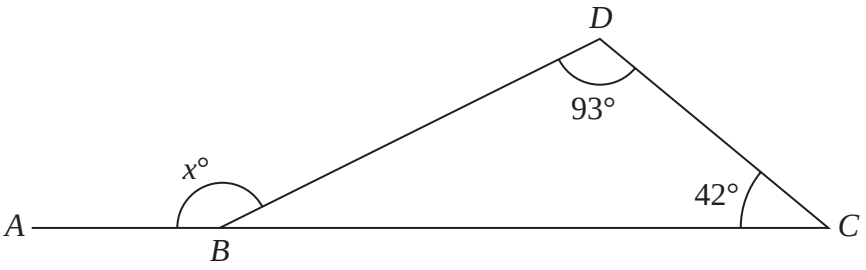
y = ...

(3)

(Total for Question 10 is 3 marks)

11 *ABC* is a straight line and *BCD* is a triangle.

Diagram **NOT** accurately drawn



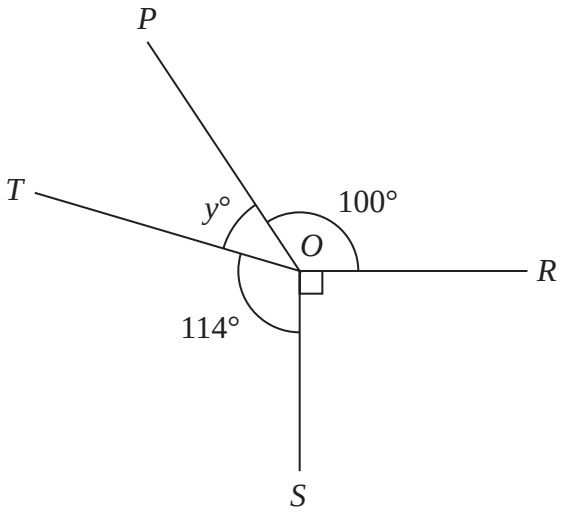
(a) Work out the value of *x*

x = ...

(2)

PO, *RO*, *SO* and *TO* are four straight lines.

Diagram **NOT** accurately drawn



(b) (i) Work out the value of *y*

y = ...

(2)

(ii) Give a reason for your answer.

.....

(1)

(Total for Question 11 is 5 marks)

12 The diagram shows triangle *ABD*

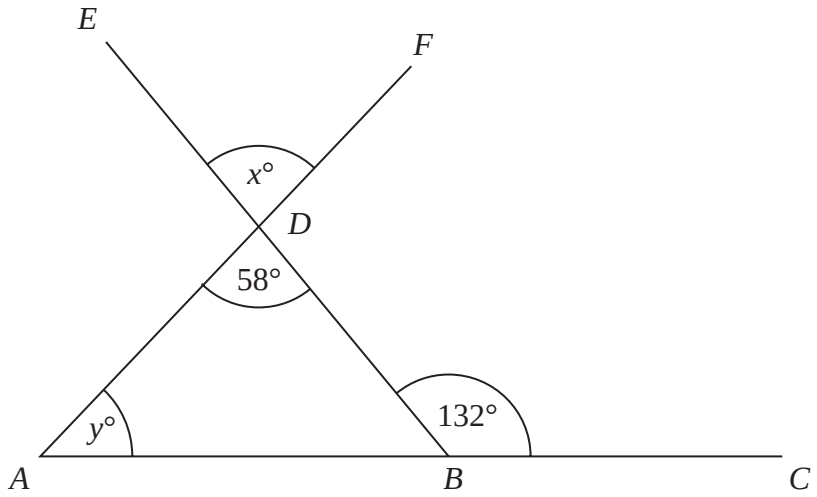


Diagram **NOT** accurately drawn

ABC, *BDE* and *ADF* are straight lines.

angle *CBD* = 132° angle *ADB* = 58°

(a) (i) Write down the value of *x*

x = ...

(ii) Give a reason for your answer.

.....

(2)

(b) Work out the value of *y*

y = ...

(2)

(Total for Question 12 is 4 marks)

13

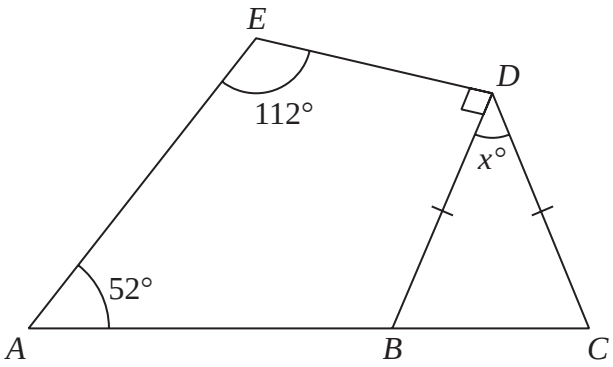


Diagram **NOT** accurately drawn

BCD is an isosceles triangle with *BD* = *CD*
ABC is a straight line.
ABDE is a quadrilateral.

Work out the value of *x*
Give a reason for each stage of your working.

x = ...

(Total for Question 13 is 4 marks)

14

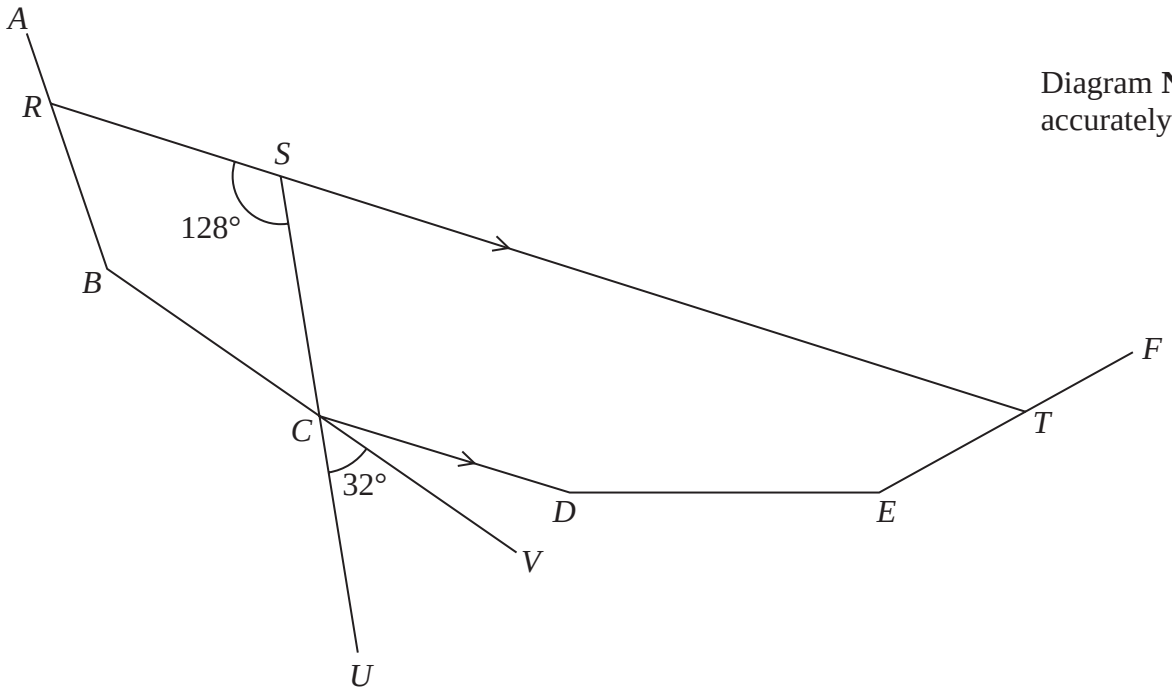


Diagram **NOT** accurately drawn

AB, *BC*, *CD*, *DE* and *EF* are five sides of a regular polygon.

RST, *SCU* and *BCV* are straight lines.
RST is parallel to *CD*
Angle *RSC* = 128°
Angle *UCV* = 32°

Work out how many sides the polygon has.
Show your working clearly.

.....

(Total for Question 14 is 4 marks)

15 The diagram shows a pentagon.

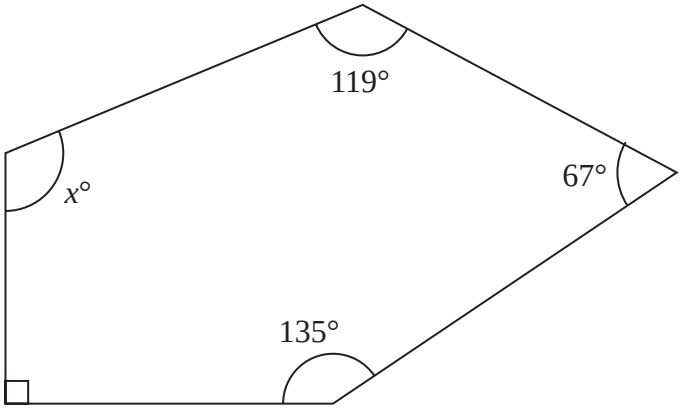


Diagram **NOT** accurately drawn

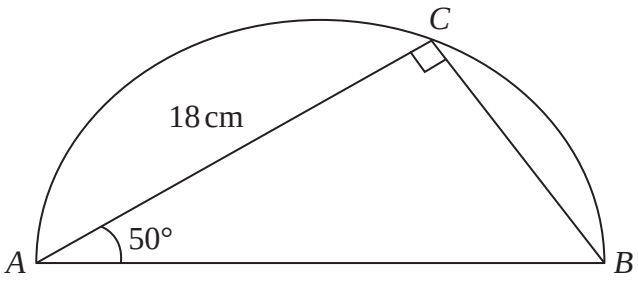
Work out the value of x

$x =$ .....

(Total for Question 15 is 3 marks)

16 The diagram shows a triangle *ABC* inside a semicircle.

Diagram **NOT** accurately drawn



A, *B* and *C* are points on the semicircle.

AB is the diameter of the semicircle.

Angle *ACB* = 90°
Angle *BAC* = 50°
AC = 18 cm

Work out the perimeter of the semicircle.
Give your answer correct to 2 significant figures.

..... cm

(Total for Question 16 is 5 marks)

17 The diagram shows two parallel lines *AB* and *DEF*

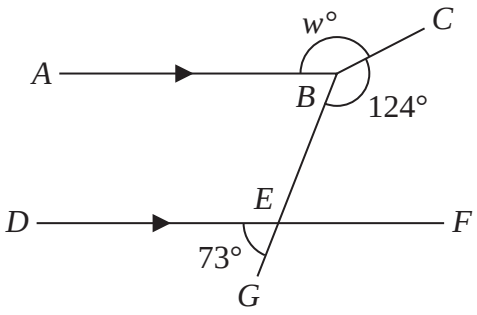


Diagram **NOT** accurately drawn

BEG is a straight line.

angle *DEG* = 73° angle *EBC* = 124° angle *ABC* = *w*°

Work out the value of *w*
Give reasons for each stage of your working.

w = ...

(Total for Question 17 is 4 marks)

18 The diagram shows quadrilateral *ABCD*

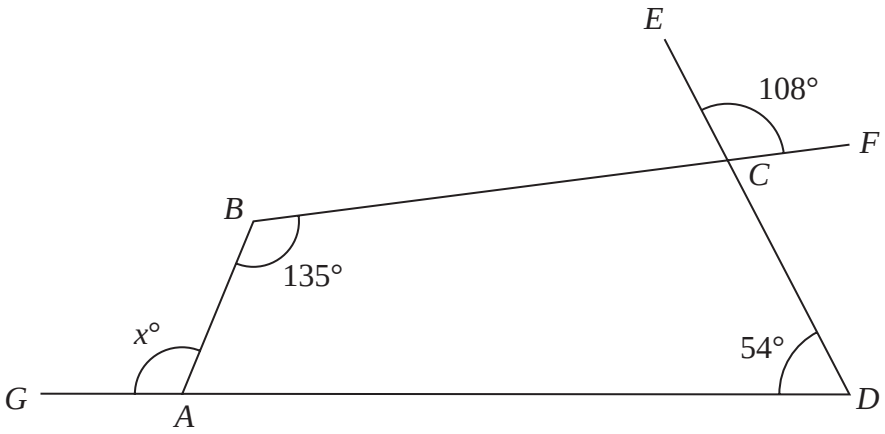


Diagram **NOT** accurately drawn

ECD, *BCF* and *GAD* are straight lines.

Work out the value of x
Give a reason for each stage of your working.

$x =$ .....

(Total for Question 18 is 5 marks)

19 The diagram shows quadrilateral *ABCD*

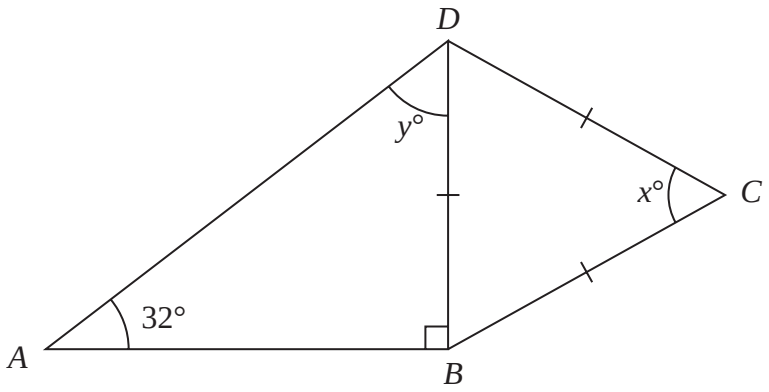


Diagram **NOT** accurately drawn

BC = *CD* = *DB*
angle *DBA* = 90° and angle *DAB* = 32°

(a) Work out the value of *x*

x = ...

(1)

(b) (i) Work out the value of *y*

y = ...

(1)

(ii) Give a reason for your answer to (b)(i).

.....

.....

(1)

(Total for Question 19 is 3 marks)

20 *ABCD* is a trapezium.

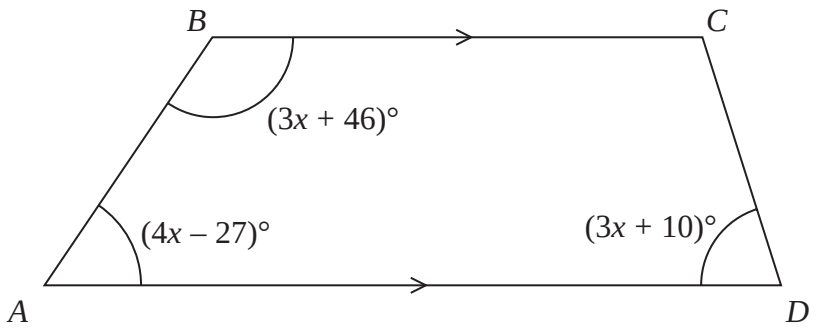


Diagram **NOT** accurately drawn

BC is parallel to *AD*

Find the size of the largest angle inside the trapezium.

.....°

(Total for Question 20 is 4 marks)

21 Here is a 9-sided regular polygon *ABCDEFGHJ*, with centre *O*

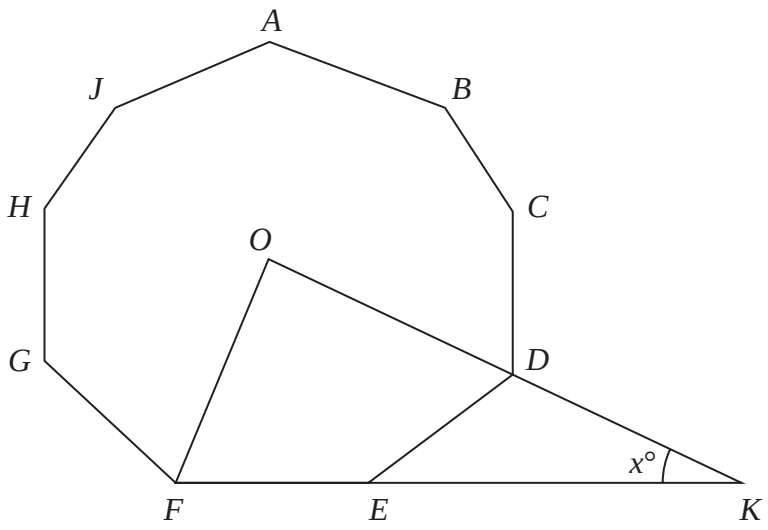


Diagram **NOT** accurately drawn

ODK and *FEK* are straight lines.

Work out the value of *x*

x = ...

(Total for Question 21 is 3 marks)