

Calculator Questions

Angles in Polygons & Parallel Lines

Basic Angle Properties / Angles in Polygons / Angles in Parallel Lines

Easy (3 questions)	/7
Medium (4 questions)	/11
Hard (4 questions)	/18
Very Hard (3 questions)	/21
Total Marks	/57

Scan here to return to the course
or visit [savemyexams.com](https://www.savemyexams.com)



Easy Questions

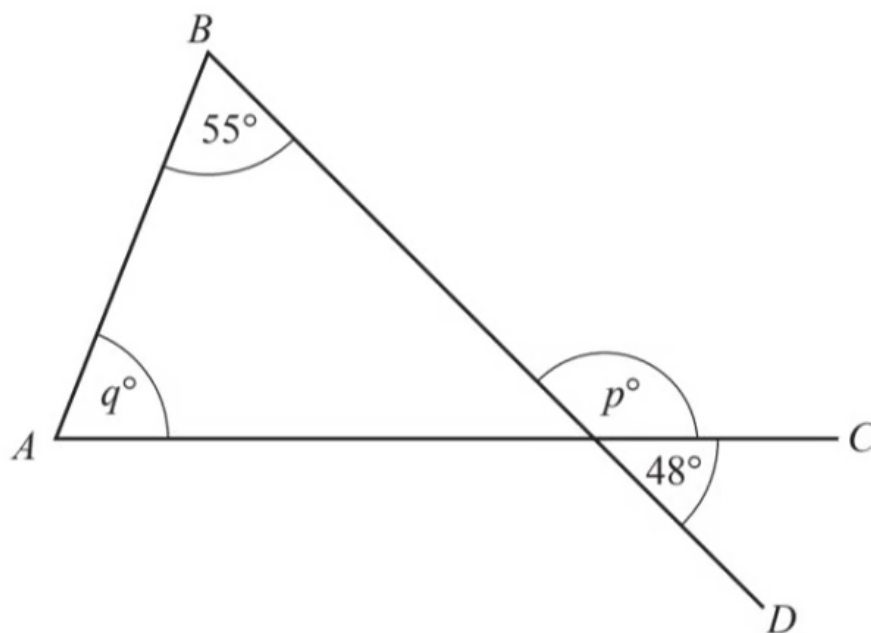
- 1 Calculate the size of one interior angle of a regular polygon with 40 sides.

(2 marks)

- 2 Find the interior angle of a regular polygon with 24 sides.

(2 marks)

3



NOT TO
SCALE

In the diagram, AC and BD are straight lines.

Find the value of p and the value of q .

$p = \dots\dots\dots$

$q = \dots\dots\dots$

(3 marks)

Medium Questions

- 1 The interior angle of a regular polygon with n sides is 150° .

Calculate the value of n .

$n = \dots\dots\dots$

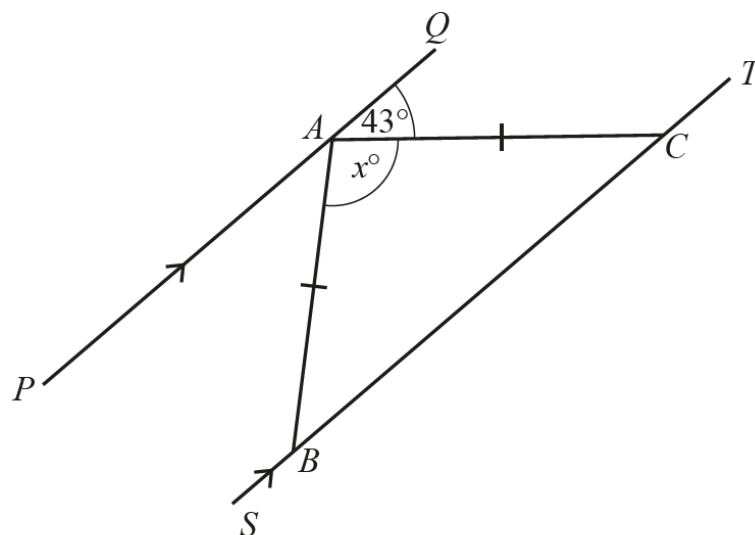
(2 marks)

- 2 A regular polygon has 72 sides.

Find the size of an interior angle.

(3 marks)

3



NOT TO
SCALE

The diagram shows two parallel lines PAQ and $SBCT$.

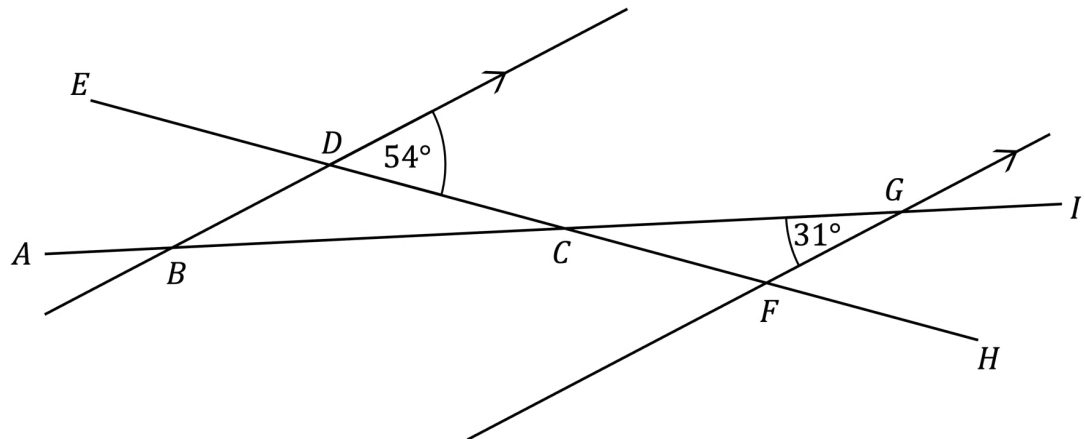
$AB = AC$ and angle $QAC = 43^\circ$.

Find the value of x .

$x = \dots\dots\dots$

(2 marks)

4



In the diagram, AI and EH are straight lines.

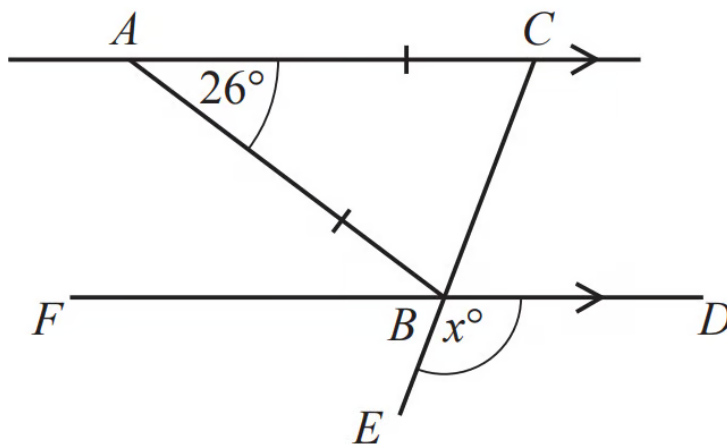
Lines BD and FG are parallel.

Find the angle DCG .

(4 marks)

Hard Questions

1



NOT TO
SCALE

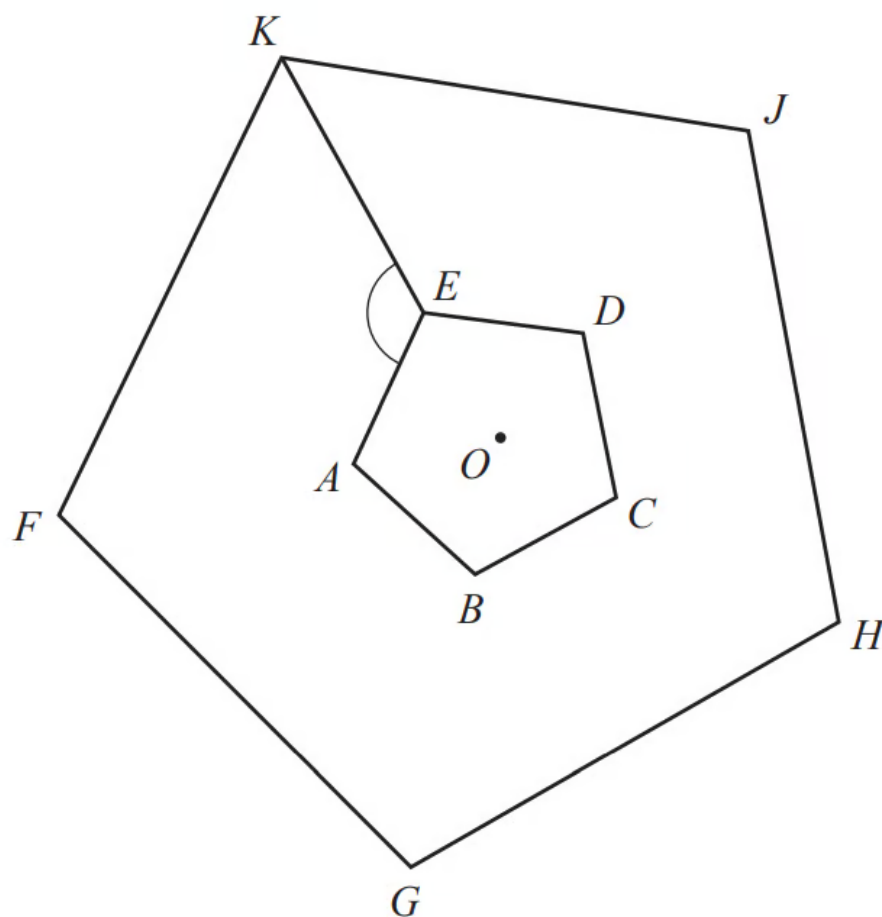
AC is parallel to FBD , ABC is an isosceles triangle and CBE is a straight line.

Find the value of x .

$x = \dots\dots\dots$

(3 marks)

2 (a)



NOT TO
SCALE

The diagram shows two regular pentagons.

Pentagon $FGHIK$ is an enlargement of pentagon $ABCDE$, centre O .

Find angle AEK .

Angle AEK =

(4 marks)

(b) The area of pentagon $FGHIK$ is 73.5 cm^2 .

The area of pentagon $ABCDE$ is 6 cm^2 .

Find the ratio perimeter of pentagon $FGHJK$: perimeter of pentagon $ABCDE$ in its simplest form.

..... :

(2 marks)

3 In a regular polygon, the interior angle is 11 times the exterior angle.

i) Work out the number of sides of this polygon.

[3]

ii) Find the sum of the interior angles of this polygon.

[2]

(5 marks)

4

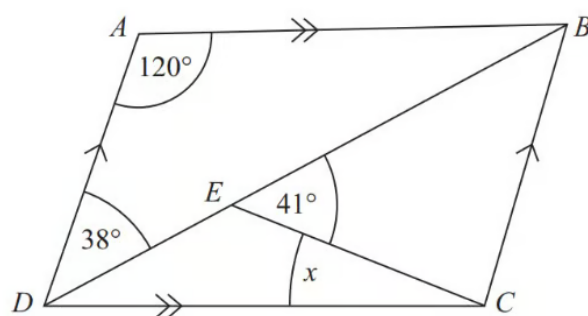


Diagram **NOT**
accurately drawn

$ABCD$ is a parallelogram.

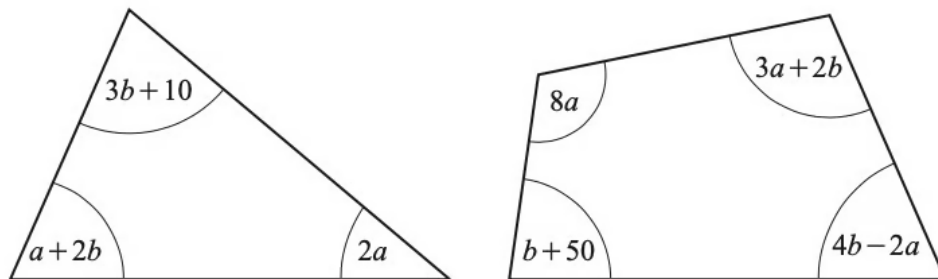
Angle $ADB = 38^\circ$.
Angle $BEC = 41^\circ$.
Angle $DAB = 120^\circ$.

Calculate the size of angle x .
You must give reasons for your answer.

(4 marks)

Very Hard Questions

- 1 The diagram shows a triangle and a quadrilateral. All angles are in degrees.



NOT TO
SCALE

- i) For the triangle, show that $3a + 5b = 170$.

[1]

- ii) For the quadrilateral, show that $9a + 7b = 310$.

[1]

- iii) Solve these simultaneous equations.
Show all your working.

$$a = \dots\dots\dots$$

$$b = \dots\dots\dots [3]$$

- iv) Find the size of the smallest angle in the triangle.

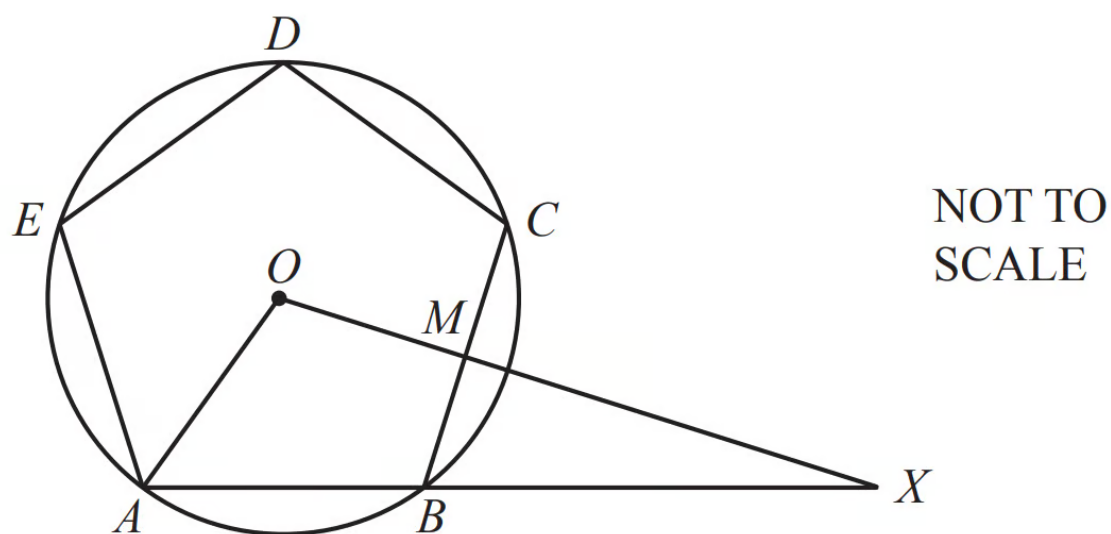
[1]

(6 marks)

2 (a) Show that each interior angle of a regular pentagon is 108° .

(2 marks)

(b)



The diagram shows a regular pentagon $ABCDE$.
The vertices of the pentagon lie on a circle, centre O , radius 12 cm.
 M is the midpoint of BC .

i) Find BM .

$BM = \dots\dots\dots$ cm [3]

OMX and ABX are straight lines.

ii) Find BX .

$BX = \dots\dots\dots$ cm [3]

ii) Calculate the area of triangle AOX .

..... cm^2 [3]

(9 marks)

3 The diagram shows a regular 10-sided polygon, $ABCDEFGHIJ$

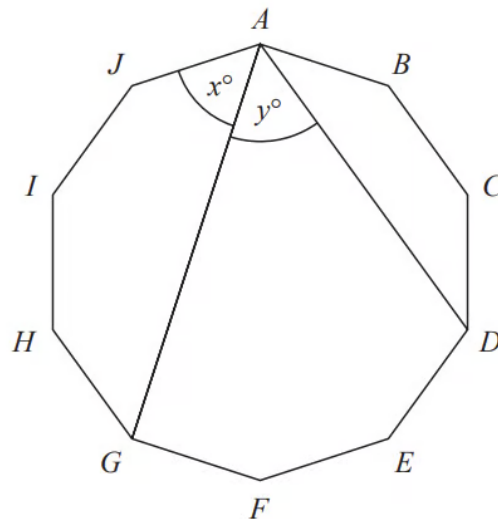


Diagram **NOT**
accurately drawn

Show that $x = y$.

(4 marks)