



Aberdare Community School
Mathematics Department

WJEC GCSE

Higher – Calculator

Shape

Angle calculations

Name:

Set:

Date:

Teacher:

- (c) The diagram shows a triangle with angles, measured in degrees, of $5x$, $2x$ and $3x$.

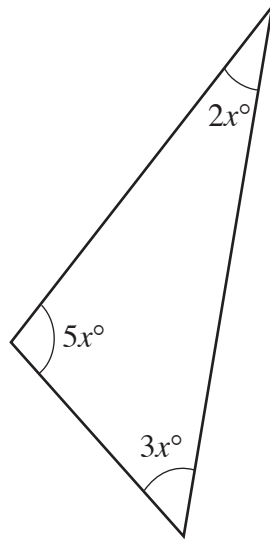


Diagram not drawn to scale.

Form an equation in x and solve it.

.....

.....

.....

[3]

3. The diagram shows a quadrilateral with angles, measured in degrees, of $5x + 40$, $2x + 20$, $2x$ and $3x$.

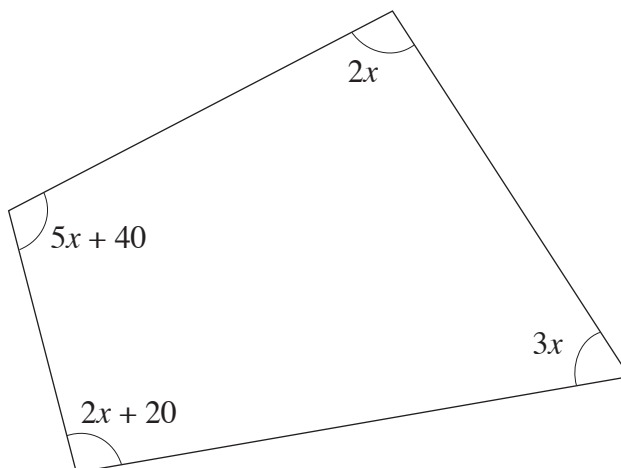


Diagram not drawn to scale.

Form an equation in x and solve it.

.....

.....

.....

.....

.....

[3]

4.

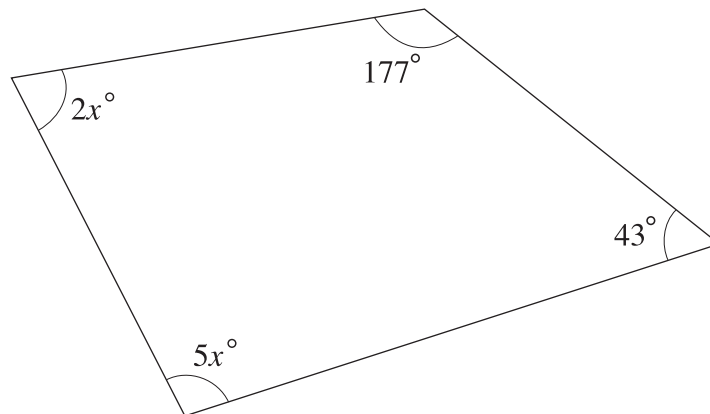


Diagram not drawn to scale.

The diagram shows a quadrilateral with interior angles of $2x^\circ$, $5x^\circ$, 43° and 177° . Write down an equation in terms of x . Solve your equation to find the value of x . Hence write down the size of the smallest angle in the quadrilateral.

.....

.....

.....

.....

.....

.....

.....

.....

[5]

8. A six sided polygon is to be drawn using a computer program.
The designer has stated that three of the internal angles should be 140° each and the remaining three angles should all be acute angles.
Explain whether or not this design is possible.
Show your working and give a reason for your answer.

.....

.....

.....

.....

.....

.....

.....

[6]

1. (a) Find the size of each of the angles marked x , y and z in the diagram.

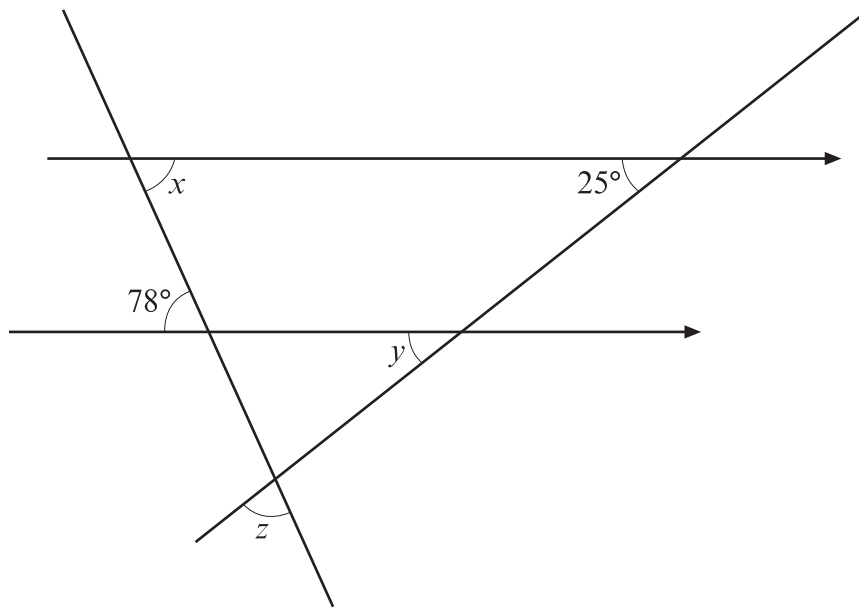


Diagram not drawn to scale

$x = \dots\dots\dots^\circ$

$y = \dots\dots\dots^\circ$

$z = \dots\dots\dots^\circ$

[3]

- (b) The diagram shows a regular 5 sided polygon.

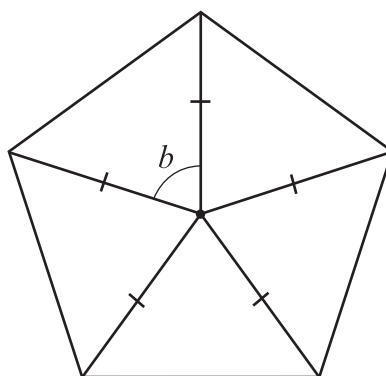


Diagram not drawn to scale

Calculate the size of the angle marked b in the diagram.

.....

.....

.....

(c)

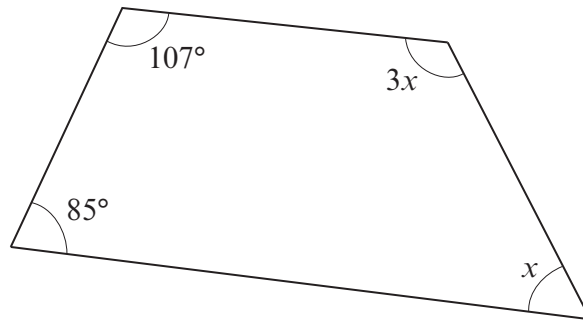


Diagram not drawn to scale

The interior angles of a quadrilateral are x° , 85° , 107° and $3x^\circ$.
Form an equation and solve it to find the value of x .

.....

.....

.....

.....

.....

[4]

3.

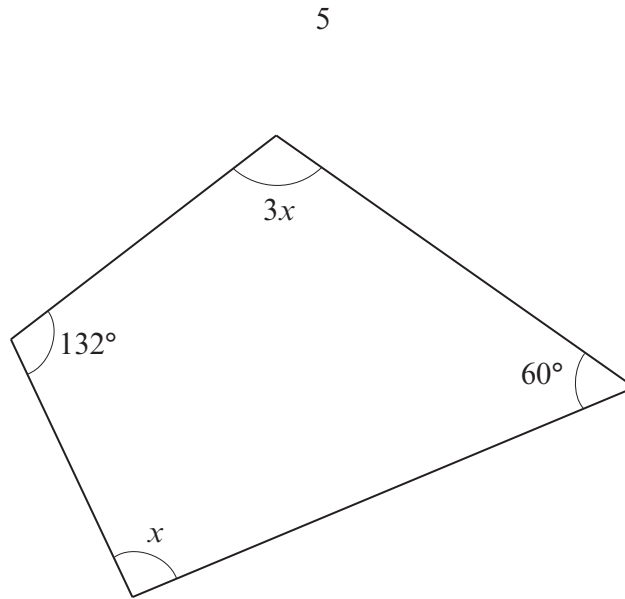


Diagram not drawn to scale

Calculate the value of x .

.....

.....

.....

.....

.....

.....

.....

$x =$

[4]



1. (a) A plan of the layout of a number of cycle tracks to be made around a park is shown below.
In order to mark out the cycle tracks the size of the angles a , b , c and d need to be found.

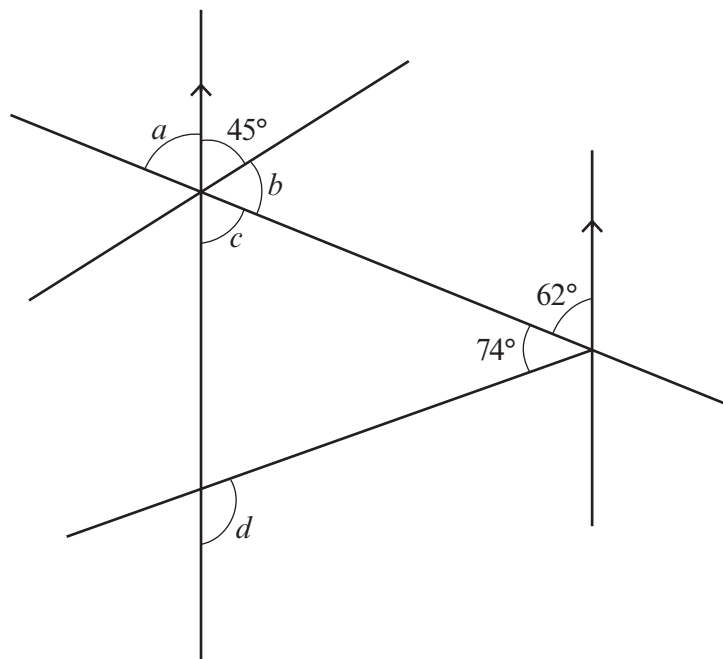


Diagram not drawn to scale

Calculate the angles marked a , b , c , and d .

.....

.....

.....

.....

$$a = \text{.....}^\circ$$

$$b = \text{.....}^\circ$$

$$c = \text{.....}^\circ$$

$$d = \text{.....}^\circ$$

[4]

- (b) In another section of the park there is a flowerbed in the shape of a rhombus.
One of the angles of the rhombus is 46° .
Calculate the size of the other three angles of the rhombus.

.....

.....

.....

[2]

1.

(b) A regular polygon has an exterior angle of 22.5° .
How many sides does this regular polygon have?
You must show all your working.

.....

.....

.....

.....

.....

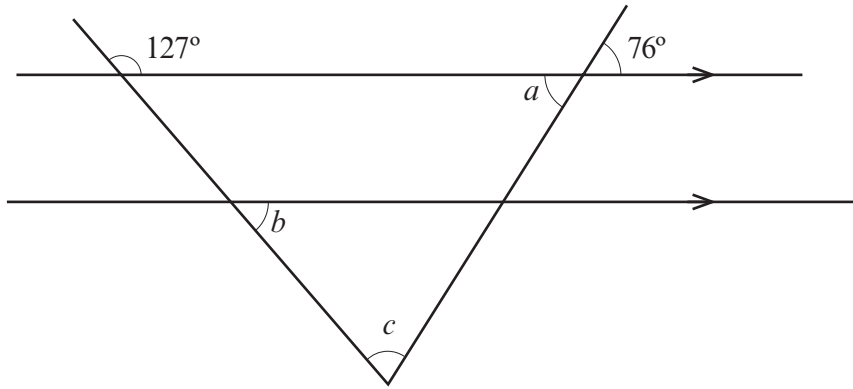
.....

[3]

4353
020003



1.

*Diagram not drawn to scale*Find the sizes of the angles a , b and c .

.....

.....

$$a = \dots\dots\dots^\circ \quad b = \dots\dots\dots^\circ \quad c = \dots\dots\dots^\circ$$

[3]

4370
060003

- (d) A new runway site is being planned for a different island. A diagram of the plan for the runway site is shown below.

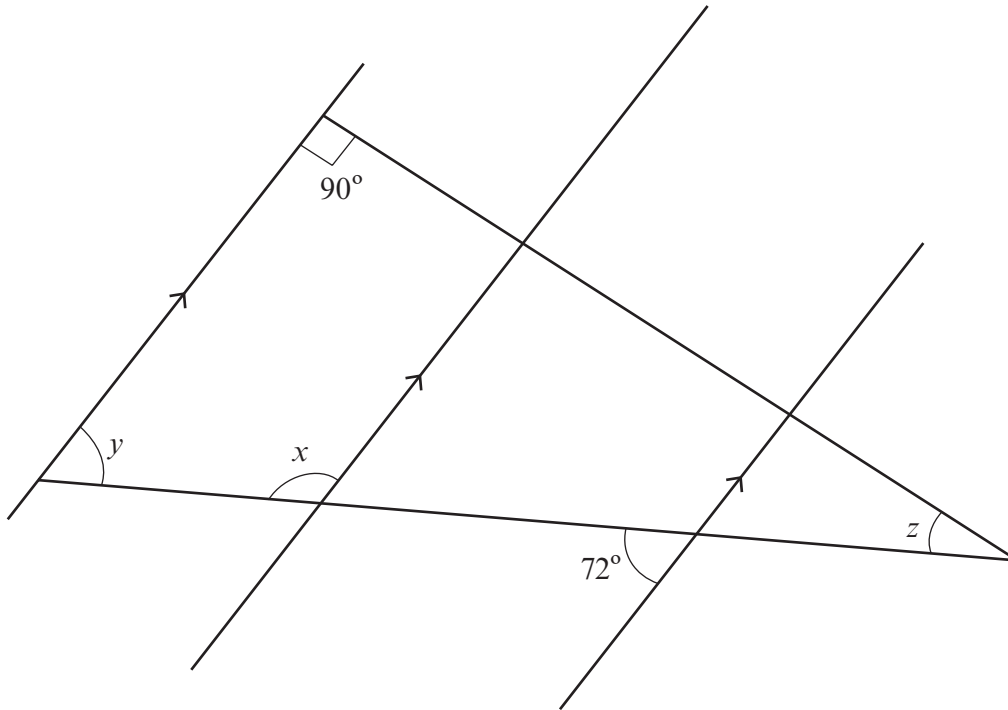


Diagram not drawn to scale

Find the size of the angles x , y and z .

.....

.....

.....

.....

$x = \dots\dots\dots^\circ$ $y = \dots\dots\dots^\circ$ $z = \dots\dots\dots^\circ$

[4]

2. (a) Calculate the size of an interior angle in a regular 12-sided polygon.

[3]

.....

.....

.....

.....

(b) Do regular 12-sided polygons tessellate?
You must give a reason for your answer.

[1]

.....

.....

.....

.....

8. The diagram shows a square drawn inside a regular hexagon.

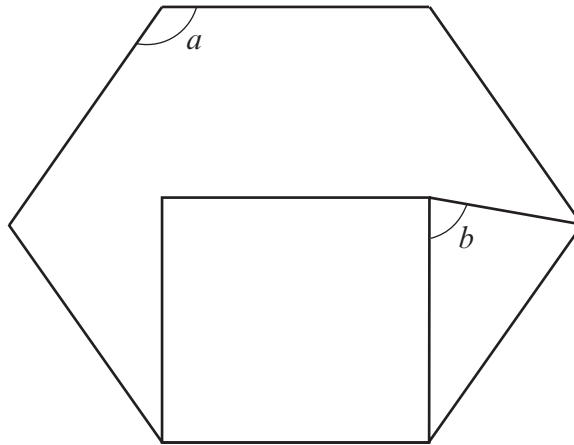


Diagram not drawn to scale

- (a) Calculate the size of angle a .

[2]

.....

.....

.....

.....

.....

$a = \text{.....}^\circ$

- (b) Calculate the size of angle b .

[3]

.....

.....

.....

.....

.....

$b = \text{.....}^\circ$

4353
02/00/09

3. Bikes are built around a frame.



Below is a scale drawing of a bike frame.

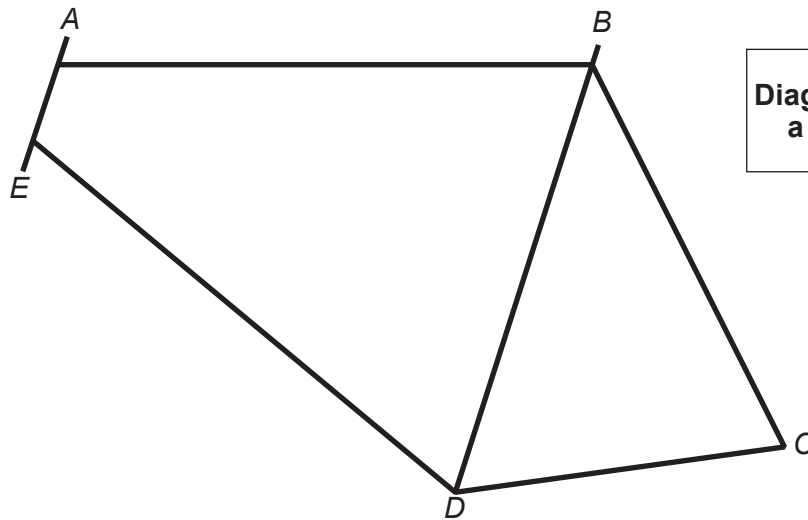


Diagram drawn to
a scale of 1:8

- (b) Is AE parallel to BD ?
Use angle facts to give a reason for your answer.

[2]

.....

.....

.....

6. The diagram below shows part of a regular polygon.
Calculate the number of sides of this regular polygon.

[2]

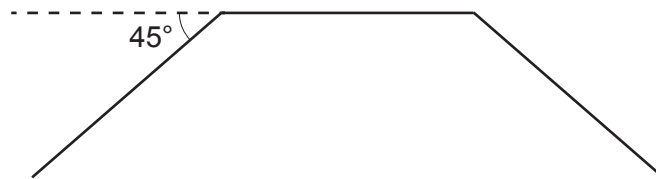


Diagram not drawn to scale

.....

.....

.....

.....

.....

.....



5. Find the size of each interior angle of a regular pentagon.

[2]

.....

.....

.....

.....

.....

.....

4353
020007