# OCR 08 Basic Geometry (Foundation)

1. A quadrilateral has exactly one pair of parallel opposite sides.

Write the name of this shape.

1. Write the name of this 3D shape.
2. Use a ruler and protractor to draw an angle of 35°.
3. What is the size of angle *h* in degrees?

80°

100°

**Not to scale**

*h*

1. This is a regular pentagon.

Calculate the size of angle *x*.

*x*

**Not to scale**

1. Calculate the size of angle *b*.

66°

*b*⁰

**Not to scale**

110°

1. This diagram shows a triangle inside a rectangle.

Find the size of angle *a*.

*a*

**Not to scale**

1. ABCD is a kite. ACDE is a parallelogram.

Find the size of angle DAE.

42°

B

A

C

**Not to scale**

E

D

1. Which of these shapes have exactly four lines of symmetry?

**D**

**E**

**A**

**G**

**C**

**B**

**H**

**F**

**I**

1. Find the size of angle *x*.

65°

*x*

110°⁰

**Not to scale**

1. Draw a labelled diagram to represent the following geometric description.
* PQRS is parallelogram.
* T is the midpoint of PS.
* There is a line through T parallel to RS.
1. Draw and label diagrams to show the difference between
* a **segment** of a circle
* a **sector** of a circle.
1. Here is a quadrilateral.

Kate says “The quadrilateral is a rhombus”.

Farah says “The quadrilateral is a kite”.

State whether each person is correct and give a reason for each decision.

1. Which of these 3D shapes are prisms? Explain your answers.

AZ

CZ

BZ

1. Draw a quadrilateral that has no rotational symmetry and exactly one line of reflective symmetry.
2. Dave has drawn a square with side length 3 units on a coordinate grid.

Write down four pairs of (*x*, *y*) coordinates that could be the vertices of Dave’s square.

1. This table shows the distances between 3 towns.

|  |  |
| --- | --- |
|  | **Distance (km)** |
| Athelton to Biddington | 6 |
| Biddington to Compton | 8 |
| Compton to Athelton | 10 |

Construct a scale drawing to show the relative positions of the three towns.

Use a scale of 1 cm to 1 km.

1. This model is made from 1 cm cubes.

How many more cubes are needed to make a 4 cm  3 cm  3 cm cuboid?



1. The diagonals of a kite bisect at right angles.

Use this information to construct a kite using ruler and compasses.

1. The diagram shows a regular pentagon ABCDE together with three sides XE, EC, CZ of a larger regular pentagon. What is the size of angle BCZ?

Z

B

A

C

D

E

X

### Answers

1. Trapezium
2. Cylinder
3. Angle drawn measures 35° (2°)
4. 100°
5. 72°
6. 3rd angle of triangle is 70° so *b* is .
7. Angles in triangle are all 60° so *a* is .
8. Angle ACD  angle ADE  angle AED  42°

So angle DAE 

1. A, D, F
2. 45° (using alternate angles, angles on a straight line and angles in a triangle)
3. Correct shape drawn with sufficient labelling to identify vertices, T as the midpoint of PS and the line through T being parallel to RS.

P

Q

R

S

T

Segment

Sector

1. Kate is correct because all 4 sides are the same length, so it is a rhombus.

Farah is correct because the shape has two pairs of adjacent sides equal (or diagonals bisect at right angles because it is a rhombus).

1. A and B are prisms because they each have a constant cross-section. C is not a prism.
2. One of:

 isosceles trapezium kite inverted kite (labels not required)

1. Four coordinates of the form , ,  and  e.g. , ,  and .
2. Right-angled triangle constructed with arcs showing. Lines of correct length with towns identified. Drawing can be in any orientation.

(8 cm)

A

B

C

(10 cm)

(6 cm)

1. The cuboid will need 36 cubes in total. The model currently has 12 cubes, so 24 more cubes are required.
2. Line drawn, perpendicular bisector constructed, sides drawn to form kite.
3. Interior angle of pentagon is 108°, so angle DCE is 36° (isosceles triangle).

Angle BCD is also 108°, so angle BCE is .

Angle ZCE is also 108°, so angle BCZ is .

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| **Assessment Objective** | **Qu.** | **Topic** | **R** | **A** | **G** |  | **Assessment Objective** | **Qu.** | **Topic** | **R** | **A** | **G** |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| AO1 | 1 | Know the basic properties of quadrilaterals |  |  |  |  | AO1 | 1 | Know the basic properties of quadrilaterals |  |  |  |
| AO1 | 2 | Recognise terms for polyhedral and other solids |  |  |  |  | AO1 | 2 | Recognise terms for polyhedral and other solids |  |  |  |
| AO1 | 3 | Use a protractor to construct angles |  |  |  |  | AO1 | 3 | Use a protractor to construct angles |  |  |  |
| AO1 | 4 | Apply angle facts to find angles |  |  |  |  | AO1 | 4 | Apply angle facts to find angles |  |  |  |
| AO1 | 5 | Use the sum of the exterior angles of a polygon  |  |  |  |  | AO1 | 5 | Use the sum of the exterior angles of a polygon  |  |  |  |
| AO1 | 6 | Apply angle facts to find angles |  |  |  |  | AO1 | 6 | Apply angle facts to find angles |  |  |  |
| AO1 | 7 | Use properties of a triangle to find angles |  |  |  |  | AO1 | 7 | Use properties of a triangle to find angles |  |  |  |
| AO1 | 8 | Use properties of quadrilaterals to find angles |  |  |  |  | AO1 | 8 | Use properties of quadrilaterals to find angles |  |  |  |
| AO1 | 9 | Identify reflection symmetries of polygons |  |  |  |  | AO1 | 9 | Identify reflection symmetries of polygons |  |  |  |
| AO1 | 10 | Apply angle facts to find angles |  |  |  |  | AO1 | 10 | Apply angle facts to find angles |  |  |  |
| AO2 | 11 | Draw diagrams from written descriptions |  |  |  |  | AO2 | 11 | Draw diagrams from written descriptions |  |  |  |
| AO2 | 12 | Understand circle nomenclature |  |  |  |  | AO2 | 12 | Understand circle nomenclature |  |  |  |
| AO2 | 13 | Know basic properties of quadrilaterals |  |  |  |  | AO2 | 13 | Know basic properties of quadrilaterals |  |  |  |
| AO2 | 14 | Know the properties of 3D solids |  |  |  |  | AO2 | 14 | Know the properties of 3D solids |  |  |  |
| AO2 | 15 | Identify reflection and rotation symmetries of quadrilaterals |  |  |  |  | AO2 | 15 | Identify reflection and rotation symmetries of quadrilaterals |  |  |  |
| AO3 | 16 | Use *x* and *y* coordinates in plane geometry problems |  |  |  |  | AO3 | 16 | Use *x* and *y* coordinates in plane geometry problems |  |  |  |
| AO3 | 17 | Apply ruler and compass constructions to construct figures |  |  |  |  | AO3 | 17 | Apply ruler and compass constructions to construct figures |  |  |  |
| AO3 | 18 | Construct elevations of simple 3D solids from plans |  |  |  |  | AO3 | 18 | Construct elevations of simple 3D solids from plans |  |  |  |
| AO3 | 19 | Construct the perpendicular bisector of a line segment |  |  |  |  | AO3 | 19 | Construct the perpendicular bisector of a line segment |  |  |  |
| AO3 | 20 | Use the interior angle of a regular polygon to find angles in a rectilinear figure |  |  |  |  | AO3 | 20 | Use the interior angle of a regular polygon to find angles in a rectilinear figure |  |  |  |