2.12-2 Angles and Shape: Practice Set 2: 30-minute Pack

GL ASSESSMENT GL · Calculators not allowed · about 30 minutes

Total Marks

Name: _____ Date: ____ / ____ / _____

Answer ALL questions. Show all your working.

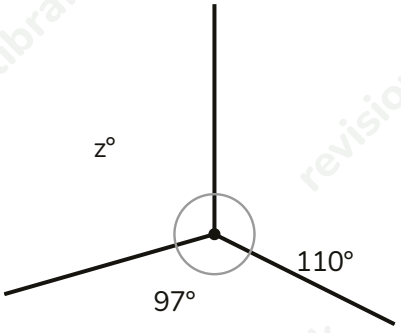
1 Two angles add together to make exactly 90 degrees. What is the name for this pair of angles?

- ☐ A) complementary
- ☐ B) supplementary
- ☐ C) co-interior
- ☐ D) reflex
- ☐ E) equal

---

2 Three angles meet at a point: 110 degrees, 97 degrees and z degrees. Calculate the value of z.

Diagram NOT accurately drawn



(not to scale)

(2)

© Revision Library | revisionlibrary.co.uk

3 Calculate the sum of the interior angles of a decagon (a 10-sided polygon).

(2)

---

4 Identify the type of triangle described by each set of angles.

(a) A triangle with angles 72 degrees, 72 degrees and 36 degrees. **(1)**

- ☐ A) equilateral
- ☐ B) isosceles
- ☐ C) scalene
- ☐ D) right-angled
- ☐ E) obtuse-angled

(b) A triangle with angles 41 degrees, 63 degrees and 76 degrees. **(1)**

- ☐ A) equilateral
- ☐ B) isosceles
- ☐ C) scalene
- ☐ D) right-angled
- ☐ E) obtuse-angled

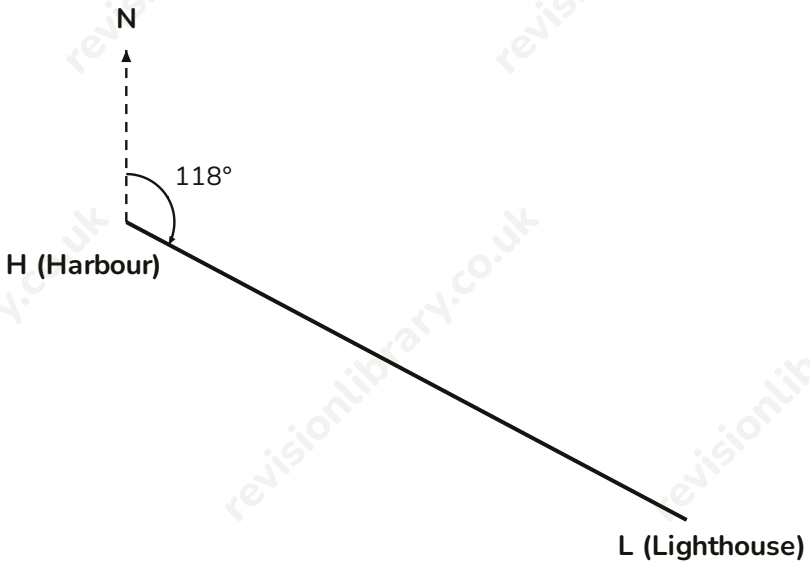
(c) A triangle with angles 90 degrees, 53 degrees and 37 degrees. **(1)**

- ☐ A) equilateral
- ☐ B) isosceles
- ☐ C) acute-angled
- ☐ D) right-angled
- ☐ E) obtuse-angled

© Revision Library | revisionlibrary.co.uk

5 The bearing of a lighthouse L from a harbour H is 118 degrees. Calculate the bearing of the harbour H from the lighthouse L (the back bearing).

Diagram NOT accurately drawn



- ☐ A) 062
- ☐ B) 118
- ☐ C) 208
- ☐ D) 242
- ☐ E) 298

© Revision Library | revisionlibrary.co.uk

6 Complete the table by stating the number of lines of symmetry and the order of rotational symmetry for each shape.

(a) A regular octagon: state the number of lines of symmetry and the order of rotational symmetry. **(2)**

(b) An isosceles triangle that is not equilateral: state the number of lines of symmetry and the order of rotational symmetry. **(2)**

(c) A rectangle that is not a square: state the number of lines of symmetry and the order of rotational symmetry. **(2)**

---

7 Euler's formula for solids states that F + V - E = 2, where F is the number of faces, V is the number of vertices and E is the number of edges.

(a) A square-based pyramid has 5 faces, 5 vertices and 8 edges. Show that this is consistent with Euler's formula. **(2)**

(b) A different solid has 9 faces and 16 edges. Calculate the number of vertices it must have. **(2)**

.....

© Revision Library | revisionlibrary.co.uk

8 When two straight lines cross each other, the two angles directly opposite one another at the crossing point are given a special name. What is it?

- ☐ A) alternate angles
- ☐ B) vertically opposite angles
- ☐ C) angles at a point
- ☐ D) angles on a straight line
- ☐ E) reflex angles

---

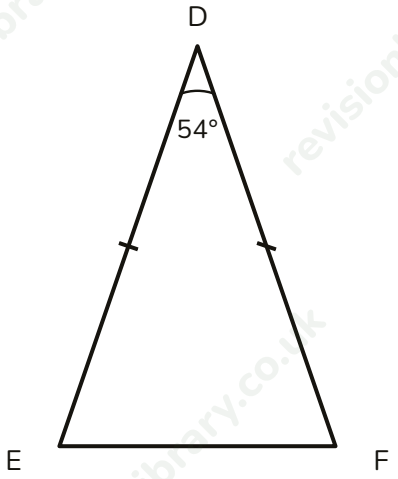
9 Two angles meet along a straight line. What do their sizes always add up to?

- ☐ A) 90 degrees
- ☐ B) 180 degrees
- ☐ C) 270 degrees
- ☐ D) 360 degrees
- ☐ E) it depends on the two angles

---

10 Triangle DEF is isosceles, with DE = DF. The angle at D (the apex) is 54 degrees. Calculate the size of each base angle, angle DEF and angle DFE.

Diagram NOT accurately drawn

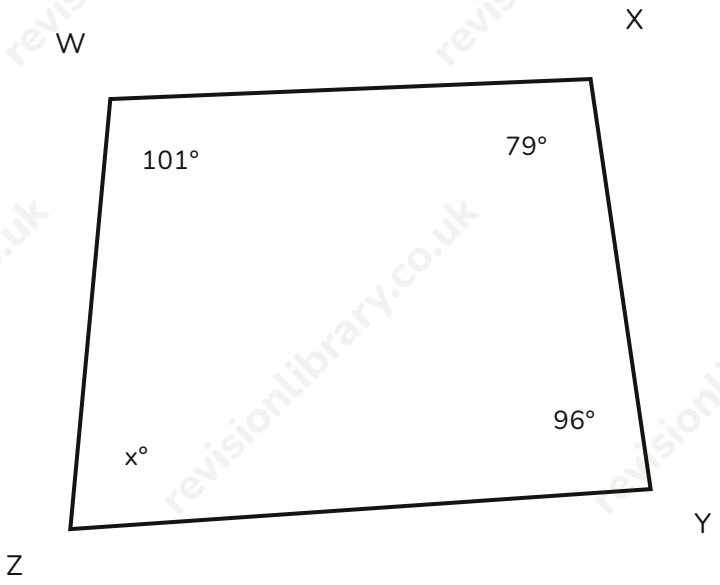


(3)

© Revision Library | revisionlibrary.co.uk

11 Quadrilateral WXYZ has angle W = 101 degrees, angle X = 79 degrees, angle Y = 96 degrees and angle Z = x degrees. Calculate the value of x.

Diagram NOT accurately drawn



(not to scale)

(2)

© Revision Library | revisionlibrary.co.uk

12 Complete each statement about polygons.

(a) A polygon with 3 sides is called a _____. **(1)**

(b) A polygon with 8 sides is called an _____. **(1)**

(c) A polygon with 11 sides is called a _____. **(1)**

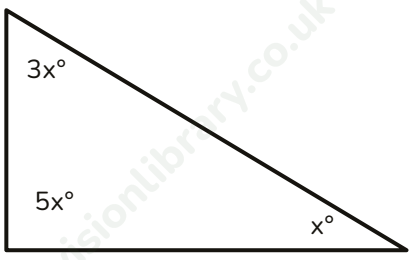
(d) A dodecagon has _____ sides. **(1)**

(e) A quadrilateral has _____ sides. **(1)**

---

13 The three angles of a triangle are x degrees, 3x degrees and 5x degrees. Calculate the value of x and hence find the size of each angle.

Diagram NOT accurately drawn



Not to scale

(3)

© Revision Library | revisionlibrary.co.uk

Mark scheme · 2.12-2 Angles and Shape: Practice Set 2: 30-minute Pack

A correct answer earns full marks unless the question asks for working, a method, proof or explanation.

Question 1

complementary cao **B1**

Answer: complementary

Question 2

360 - 110 - 97 seen (angles around a point sum to 360 degrees) **M1**

153 degrees cao **A1**

Answer: z = 153 degrees

Question 3

(10 - 2) x 180 seen **M1**

1440 degrees cao **A1**

Answer: 1440 degrees

Question 4

(a) isosceles cao **B1**

(a) Answer: isosceles

(b) scalene cao **B1**

(b) Answer: scalene

(c) right-angled cao **B1**

(c) Answer: right-angled

Question 5

298 degrees cao (118 + 180) **B1**

Answer: 298 degrees

Question 6

(a) 8 lines of symmetry cao **B1**

(a) order of rotational symmetry 8 cao **B1**

(a) Answer: 8 lines of symmetry, order 8 rotational symmetry

(b) 1 line of symmetry cao **B1**

(b) order of rotational symmetry 1 cao **B1**

(b) Answer: 1 line of symmetry, order 1 rotational symmetry

(c) 2 lines of symmetry cao **B1**

(c) order of rotational symmetry 2 cao **B1**

(c) Answer: 2 lines of symmetry, order 2 rotational symmetry

Question 7

(a) 5 + 5 - 8 substituted correctly **M1**

(a) = 2 cso (matches Euler's formula) **A1**

(a) Answer: 2 (consistent with Euler's formula)

(b) 9 + V - 16 = 2 seen, rearranged to V = 2 - 9 + 16 **M1**

(b) 9 cao **A1**

(b) Answer: 9 vertices

Question 8

vertically opposite angles cao **B1**

Answer: vertically opposite angles

Question 9

180 degrees cao **B1**

Answer: 180 degrees

Question 10

180 - 54 seen **M1**

126 / 2 seen (ft) **M1**

63 degrees cao (for each base angle) **A1**

Answer: angle DEF = angle DFE = 63 degrees

Question 11

360 - 101 - 79 - 96 seen (angles in a quadrilateral sum to 360 degrees) **M1**

84 degrees cao **A1**

Answer: x = 84 degrees

Question 12

(a) triangle cao **B1**

(a) Answer: triangle

(b) octagon cao **B1**

(b) Answer: octagon

(c) hendecagon oe (accept undecagon) **B1**

(c) Answer: hendecagon

(d) 12 cao **B1**

(d) Answer: 12

(e) 4 cao **B1**

(e) Answer: 4

Question 13

x + 3x + 5x = 180 seen (oe) **M1**

x = 20 cao **A1**

angles 20 degrees, 60 degrees and 100 degrees all correct (ft) **A1**

Answer: x = 20; angles are 20 degrees, 60 degrees and 100 degrees

© Revision Library | revisionlibrary.co.uk