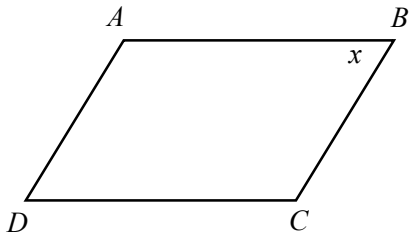
Foundation tier unit 6a check in test

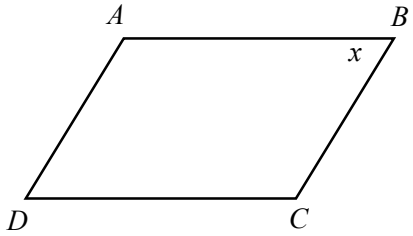
Non-calculator

[Q1–2 linked]

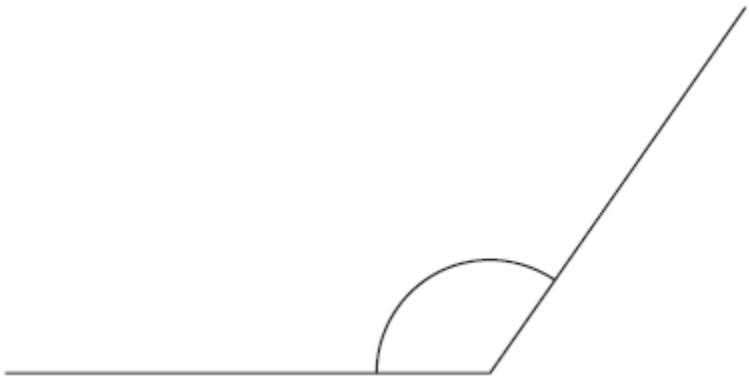
Q1. Give the mathematical name of shape *ABCD*.



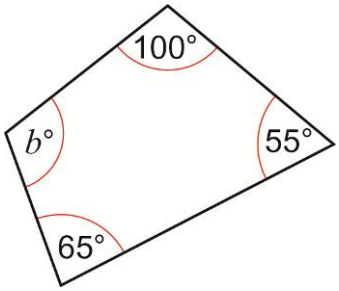
Q2. Use letters to name the angle marked *x*.



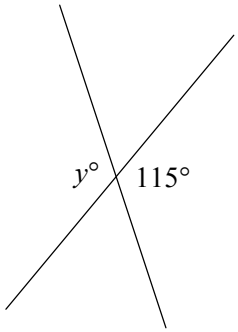
Q3. Give the mathematical name for this angle and estimate its size.



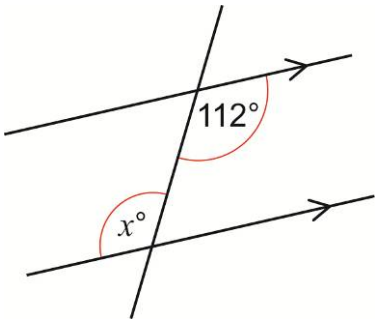
Q4. Work out the size of angle *b*.



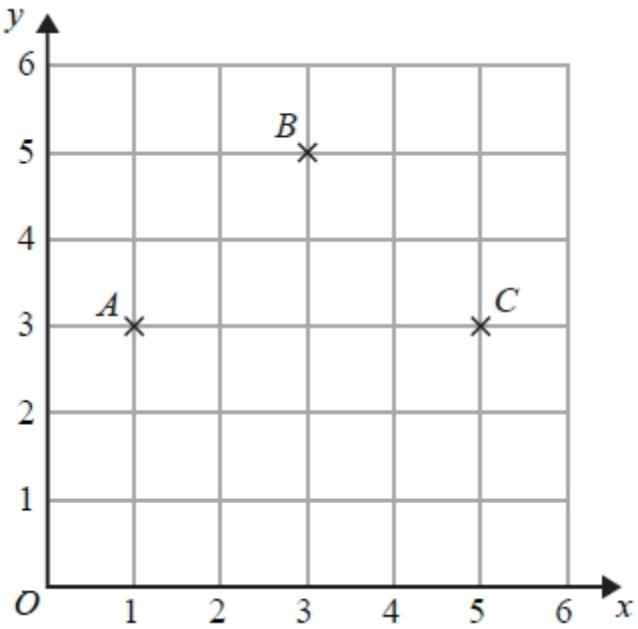
Q5. Find the value of y.



Q6. Work out the size of angle x. Give the reason for your answer.



Q7. The diagram shows three vertices of a square $ABCD$.



Find the coordinates of D.

Q8. Work out the size of the angle marked x.

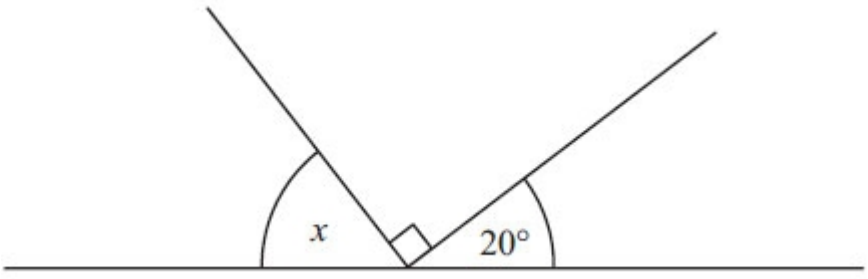


Diagram **NOT** accurately drawn

Q9. The diagram shows two identical squares and a triangle.
Find the size of the angle marked $x°$.

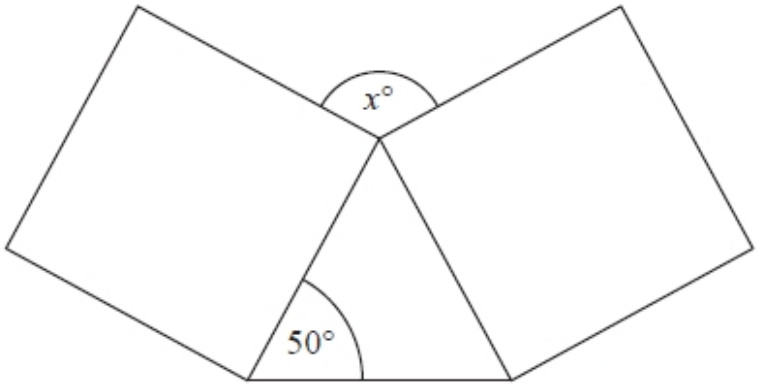


Diagram **NOT** accurately drawn

Q10. ABC is a straight line.
$AB = BD$
Angle $BAD = 25°$
Angle $BCD = 70°$

Work out the size of the angle marked x.

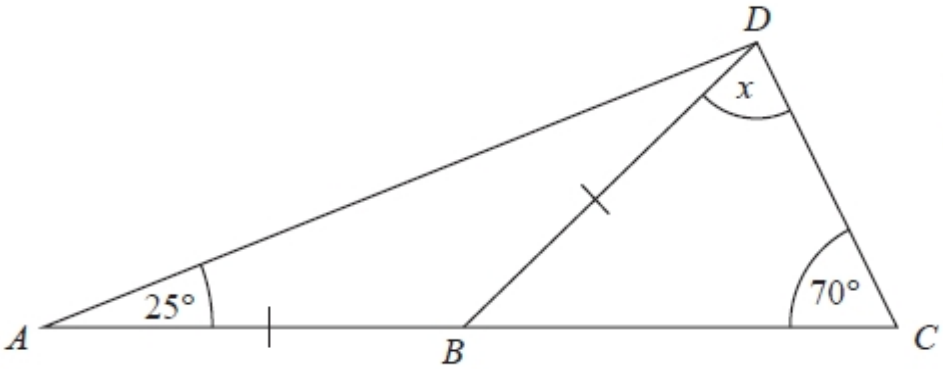


Diagram **NOT** accurately drawn

Topics listed in objectives

- Estimate sizes of angles;
- Measure angles using a protractor;
- Use geometric language appropriately;
- Use letters to identify points, lines and angles;
- Use two-letter notation for a line and three-letter notation for an angle;
- Describe angles as turns and in degrees and understand clockwise and anticlockwise;
- Know that there are 360° in a full turn, 180° in a half turn and 90° in a quarter turn;
- Identify a line perpendicular to a given line on a diagram and use their properties;
- Identify parallel lines on a diagram and use their properties;
- Find missing angles using properties of corresponding and alternate angles;
- Understand and use the angle properties of parallel lines.
- Recall the properties and definitions of special types of quadrilaterals, including symmetry properties;
- List the properties of each special type of quadrilateral, or identify (name) a given shape;
- Draw sketches of shapes;
- Classify quadrilaterals by their geometric properties and name all quadrilaterals that have a specific property;
- Identify quadrilaterals from everyday usage;
- Given some information about a shape on coordinate axes, complete the shape; Understand and use the angle properties of quadrilaterals;
- Use the fact that angle sum of a quadrilateral is 360°;
- Recall and use properties of angles at a point, angles at a point on a straight line, right angles, and vertically opposite angles;
- Distinguish between scalene, equilateral, isosceles and right-angled triangles;
- Derive and use the sum of angles in a triangle;
- Find a missing angle in a triangle, using the angle sum of a triangle is 180°;
- Understand and use the angle properties of triangles, use the symmetry property of isosceles triangle to show that base angles are equal;
- Use the side/angle properties of isosceles and equilateral triangles;
- Understand and use the angle properties of intersecting lines;
- Understand a proof that the exterior angle of a triangle is equal to the sum of the interior angles at the other two vertices; Use geometrical language appropriately, give reasons for angle calculations and show step-by-step deduction when solving problems.

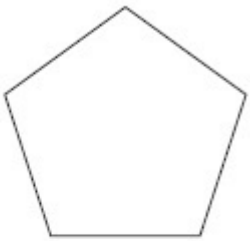
Answers

Q1. parallelogram
Q2. *ABC*
Q3. obtuse, 120°
Q4. 140°
Q5. $y = 115°$
Q6. 112°
Q7. (3, 1)
Q8. 70°
Q9. 100°
Q10. 60°

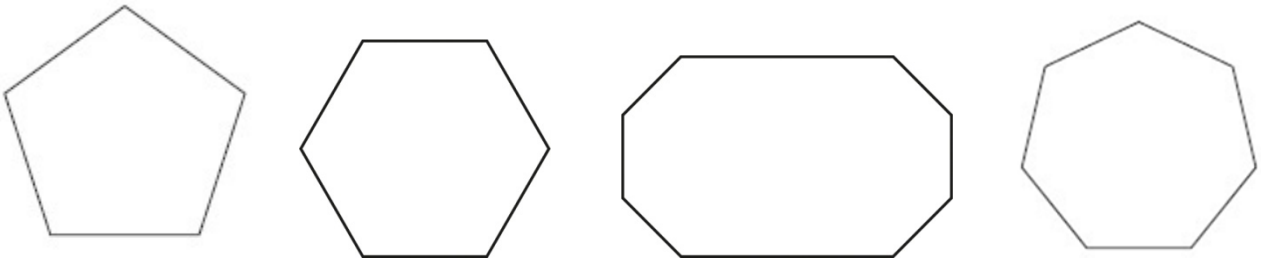
Foundation tier unit 6b check in test

Non-calculator

Q1. Write down the mathematical name of this polygon.



Q2. Which of these polygons is irregular?

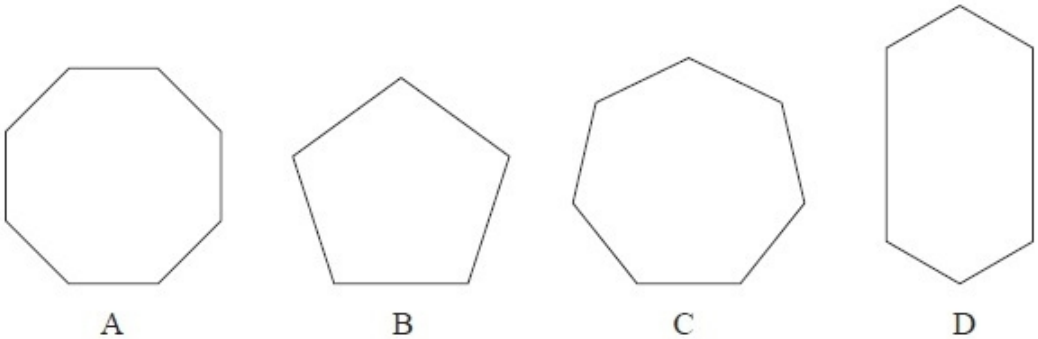


A B C D

Q3. Here is a polygon.

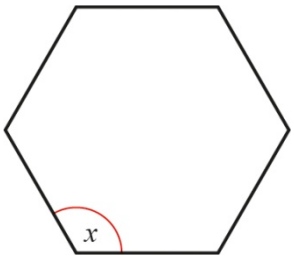
X

Which of polygons A–D is congruent to polygon X?



A B C D

Q4. Here is a regular polygon.
Find the size of the angle marked x.



Q5. Here is a heptagon.

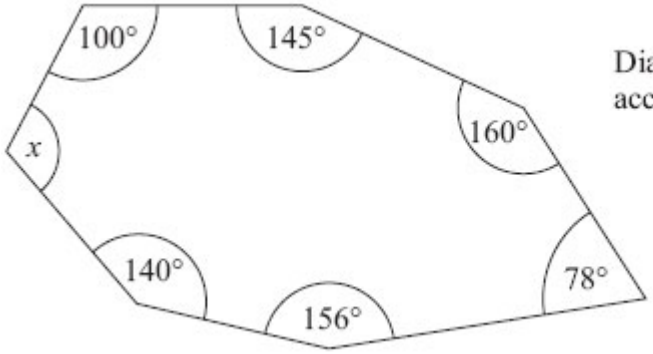


Diagram **NOT** accurately drawn

Work out the size of the angle marked x.

Q6. The diagram shows two regular shapes.

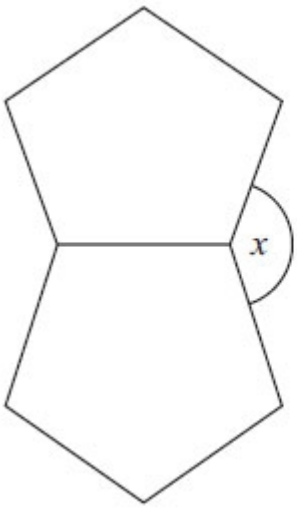
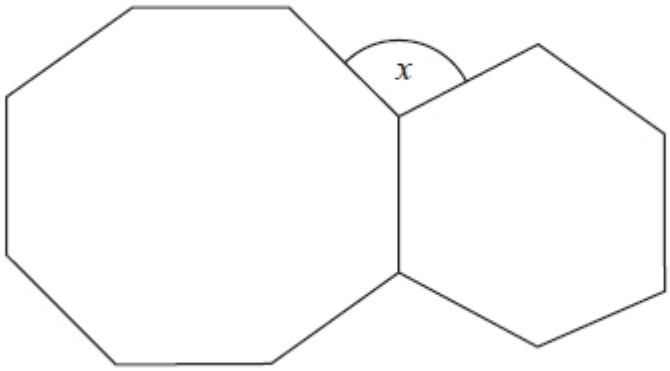


Diagram **NOT** accurately drawn

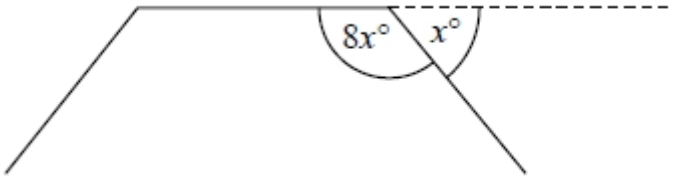
Work out the size of the angle marked x.

Q7. Work out the size of one of the exterior angles of a regular 9 sided polygon.

Q8. The diagram shows a regular octagon and a regular hexagon.
Find the size of the angle marked x



Q9. The diagram shows three sides of a regular polygon.



The size of each exterior angle of the regular polygon is $x°$.
The size of each interior angle of the regular polygon is $8x°$.

Work out the number of sides the regular polygon has.

Q10. A regular polygon has n sides.
The sum of the interior angles of the polygon is 1440°.

Work out the value of n.

Topics listed in objectives

- Recognise and name pentagons, hexagons, heptagons, octagons and decagons;
- Understand ‘regular’ and ‘irregular’ as applied to polygons;
- Use the sum of angles of irregular polygons;
- Calculate and use the sums of the interior angles of polygons;
- Calculate and use the angles of regular polygons;
- Use the sum of the interior angles of an n-sided polygon;
- Use the sum of the exterior angles of any polygon is 360°;
- Use the sum of the interior angle and the exterior angle is 180°;
- Identify shapes which are congruent (by eye);
- Explain why some polygons fit together and others do not;

Answers

Q1. pentagon
Q2. C
Q3. D
Q4. 135°
Q5. 121°
Q6. 144°
Q7. 40°
Q8. 105°
Q9. 36
Q10. $n = 10$