Single-topic practice questions

Key Stage 2

Mathematics

Angles

First name						
Middle name						
Last name						
Date of birth	Day		Month		Year	
School name						
DFE number						

Y6 Programme of Study

Geometry - properties of shapes

Pupils should be taught to:

- draw 2-D shapes using given dimensions and angles
- recognise, describe and build simple 3-D shapes, including making nets
- compare and classify geometric shapes based on their properties and sizes and find unknown angles in any triangles, quadrilaterals, and regular polygons
- illustrate and name parts of circles, including radius, diameter and circumference and know that the diameter is twice the radius
- recognise angles where they meet at a point, are on a straight line, or are vertically opposite, and find missing angles

Notes and guidance (non-statutory)

Pupils draw shapes and nets accurately, using measuring tools and conventional markings and labels for lines and angles.

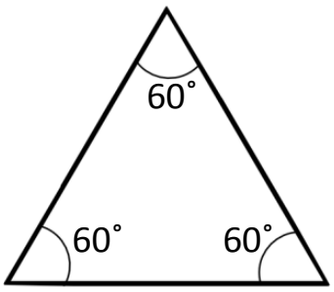
Pupils describe the properties of shapes and explain how unknown angles and lengths can be derived from known measurements.

These relationships might be expressed algebraically for example, $d = 2 \times r$; $a = 180 - (b + c)$.

Angles in 2D Shapes

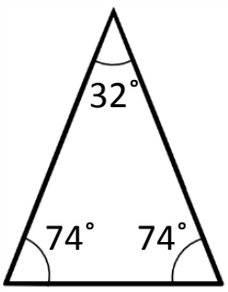
Internal angles of triangles always add up to 180˚

Equilateral Triangle



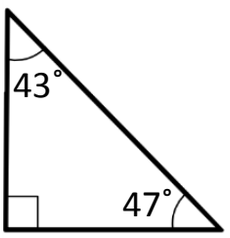
(60˚ + 60˚ + 60˚ = **180**˚)

Isosceles Triangle



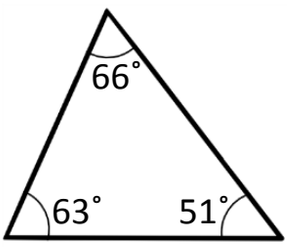
(74˚ + 74˚ + 32˚ = **180**˚)

Right-Angled Triangle



(90˚ + 43˚ + 47˚ = **180**˚)

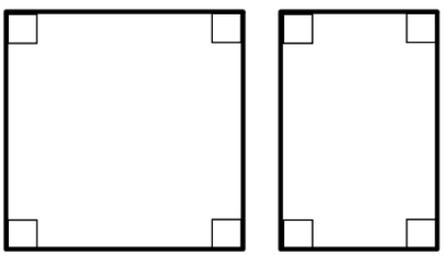
Scalene Triangle



(63˚ + 66˚ + 51˚ = **180**˚)

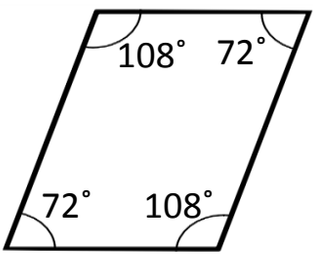
Internal angles of quadrilaterals always add up to 360˚

Squares & Rectangles



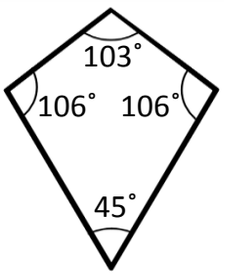
(90˚ + 90˚ + 90˚ + 90˚ = **360**˚)

Parallelogram



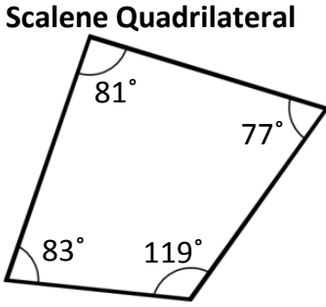
(108˚ + 108˚ + 72˚ + 72˚ = **360**˚)

Kite



(103˚ + 106˚ + 106˚ + 45˚ = **360**˚)

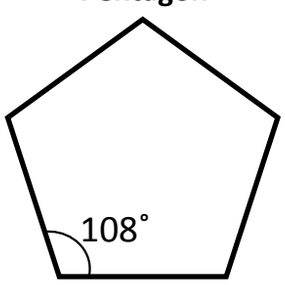
Scalene Quadrilateral



(83˚ + 81˚ + 77˚ + 119˚ = **360**˚)

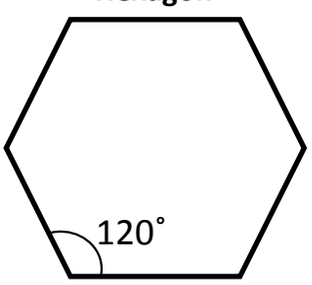
Internal angles of regular polygons

Pentagon



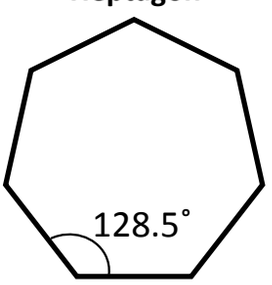
(108˚ x 5 = **540**˚)

Hexagon



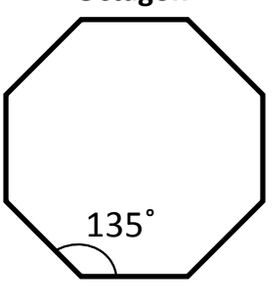
(120˚ x 6 = **720**˚)

Heptagon



(128.5˚ x 7 = **900**˚)

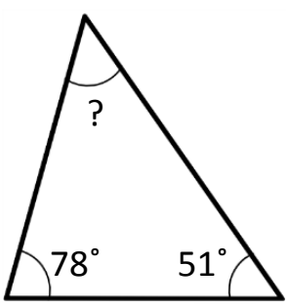
Octagon



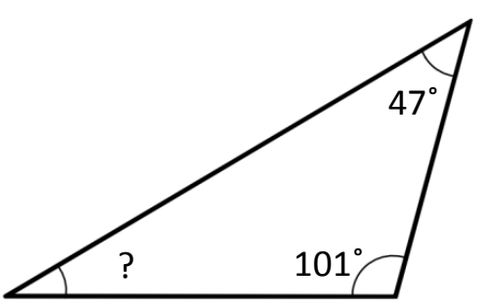
(135˚ x 8 = **1080**˚)

Missing angles

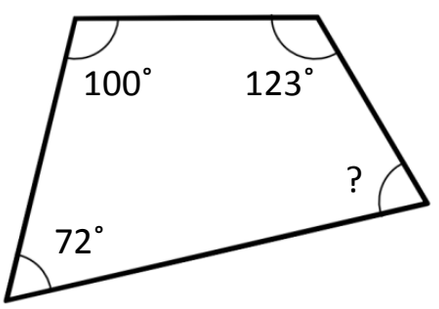
If you know enough of the internal angles of a shape, you can find a missing angle



(78˚ + 51˚) + **?** = 180˚
129˚ + **51**˚ = 180˚
? = **51**˚



(47˚ + 101˚) + **?** = 180˚
148˚ + **32**˚ = 180˚
? = **32**˚



(72˚ + 100˚ + 123˚) + **?** = 360˚
295˚ + **65**˚ = 360˚
? = **65**˚

1 Join each angle to the correct description.

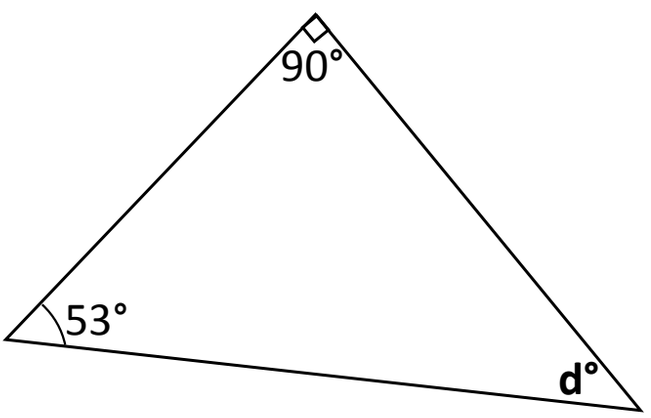
234°	**acute**
34°	**right**
90°	**reflex**
134°	**obtuse**

A

O

2 marks

2 Calculate the size of angle **d**.

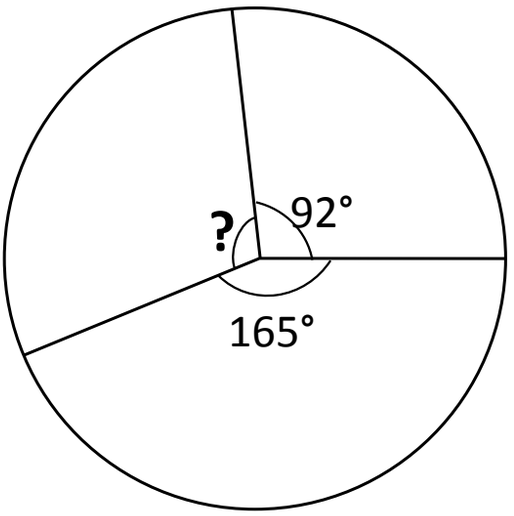


Not to scale

Can't use a protractor.

1 mark

3 Calculate the size of the missing angle shown.



Not to scale

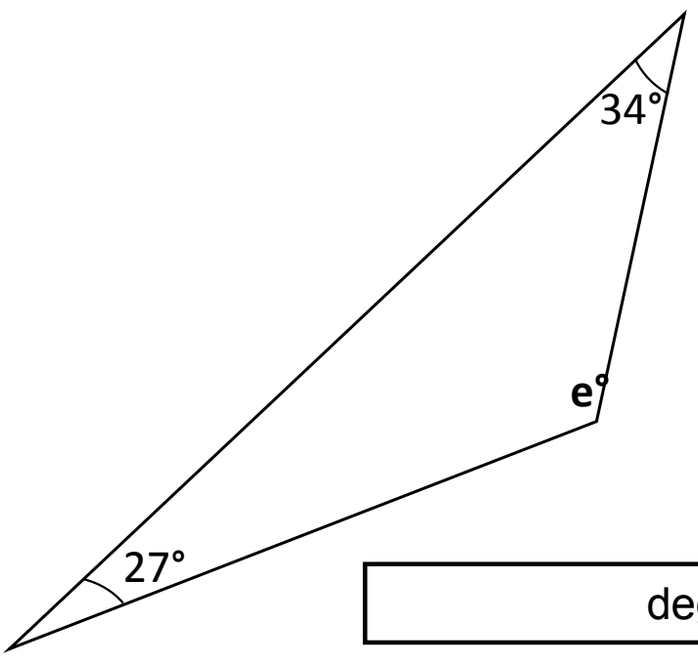
— Angles round a point add up to 360°

The missing angle is ☐ degrees.

2 marks

4 Calculate the size of angle **e**:

Not to scale

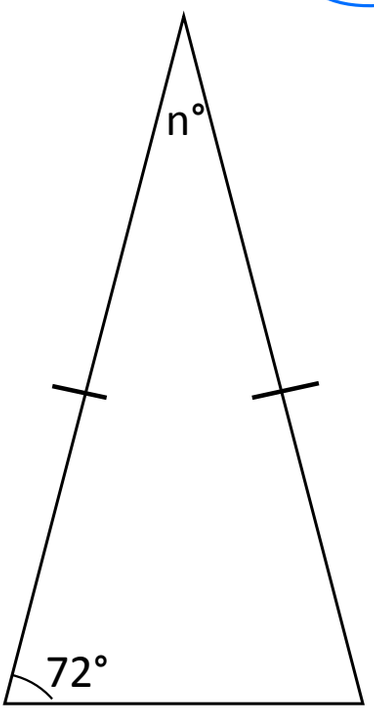


☐ degrees

1 mark

2 angles are the same size

5 The triangle is isosceles. Calculate the size of angle n.



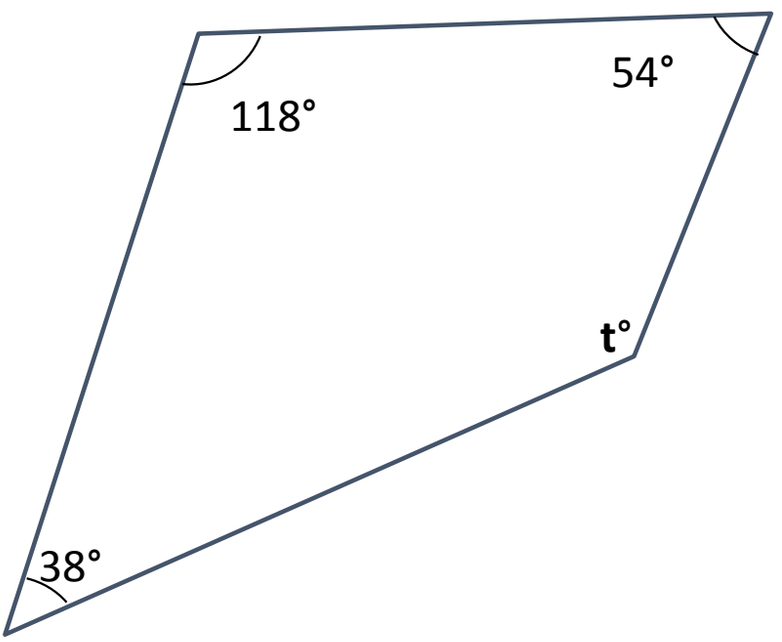
Not to scale

degrees

2 marks

6 Calculate the size of angle **t**:

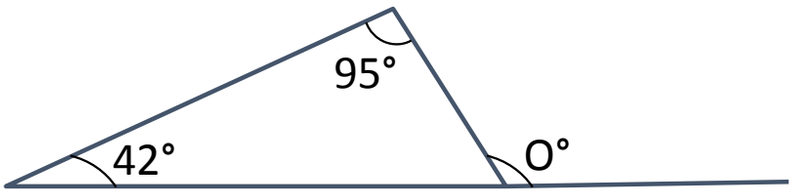
Not to scale



2 marks

7 The triangle is isosceles. Calculate the size of angle O.

Not to scale

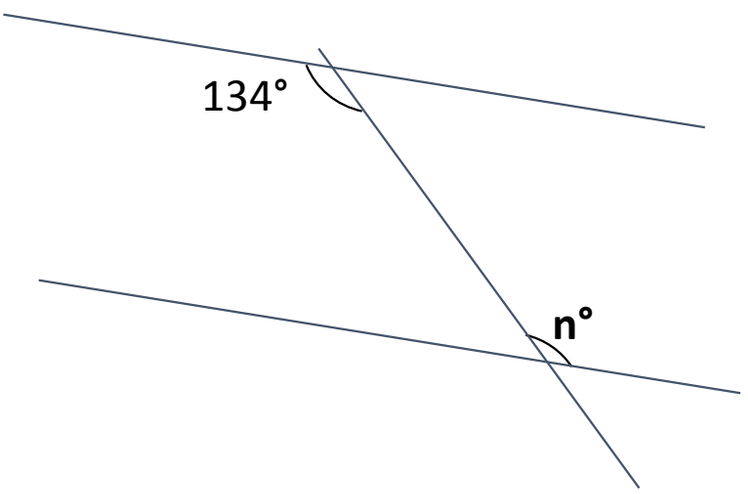


degrees

2 marks

8 Calculate the size of angle **n**:

Not to scale

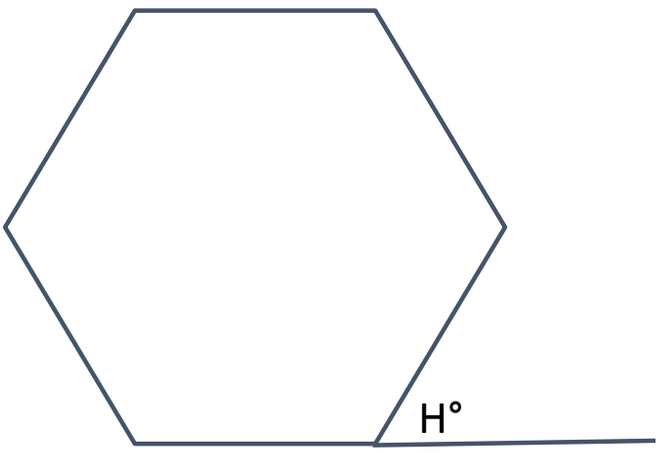


1 mark

All angles are the same size. All sides are the same length.

9 The hexagon is regular. Calculate the size of angle H.

Not to scale

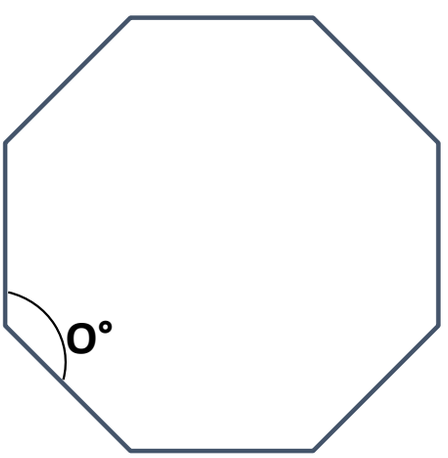


degrees

2 marks

10 The octagon is regular. What is the size of angle O?

Not to scale



1 mark