Planner

Triangles

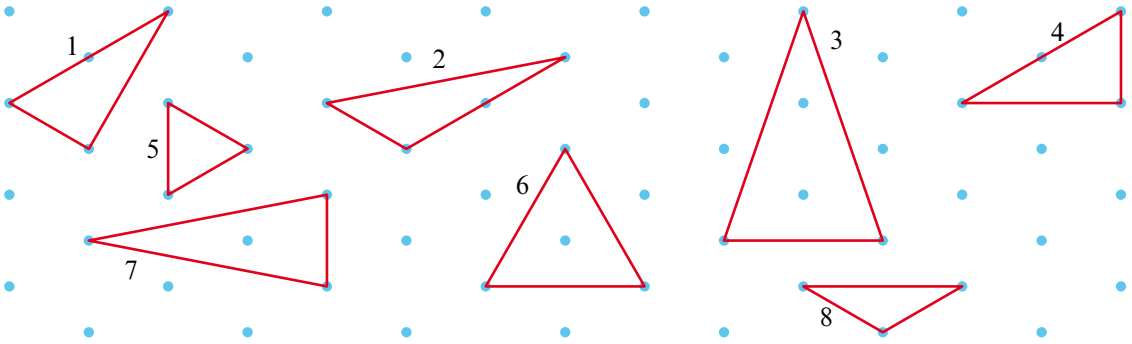
- Recognising and naming different types of triangle
- Defining a triangle
- Constructing a triangle using SAS or ASA

Keywords

You should know

explanation 1a | explanation 1b | explanation 1c

1 The triangles in the diagram are drawn on isometric dotty paper.

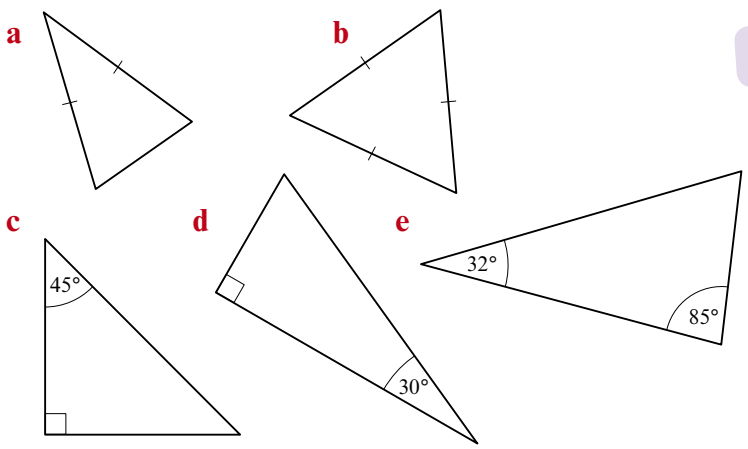


List the triangles that are

a equilateral **b** isosceles **c** right-angled

d obtuse-angled **e** scalene **f** acute-angled

2 Pick the best label for each of these triangles.



Right-angled isosceles

Right-angled

Scalene

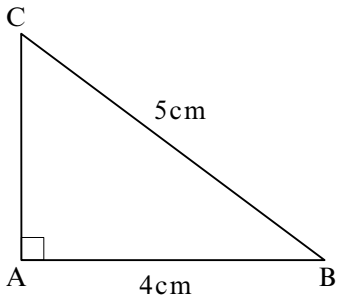
Equilateral

Isosceles

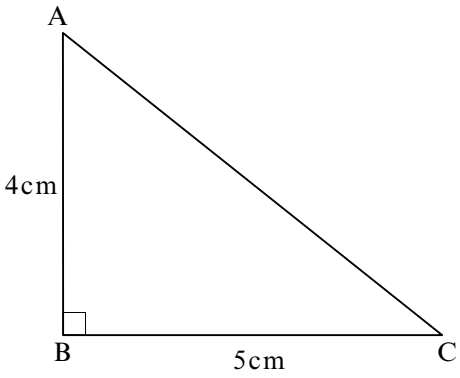
3 A class was asked to draw a right-angled triangle ABC with AB = 4 cm and BC = 5 cm. The triangles that Saba and Abida drew are shown.

a Are the triangles the same?

b Who is right? Explain your answer.

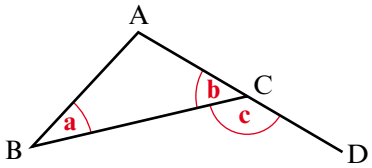


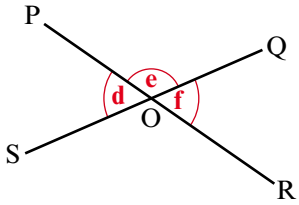
Saba's triangle



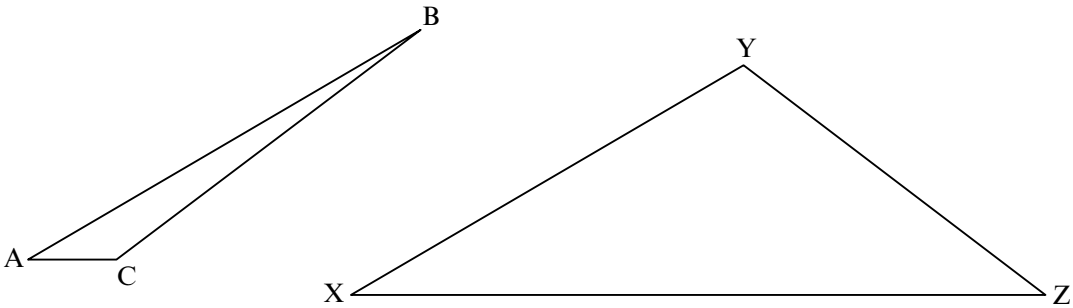
Abida's triangle

4 Use three letters to describe each of the angles shown in the diagram.





5 Here are two triangles ABC and XYZ.



a Are the two triangles the same?

b Measure these lengths and angles.

i AB **ii** XY **iii** BC

iv YZ **v** Angle BAC **vi** Angle YXZ

c If you know the lengths of two sides of a triangle and one of its angles, is this always enough information to be able to draw that triangle?

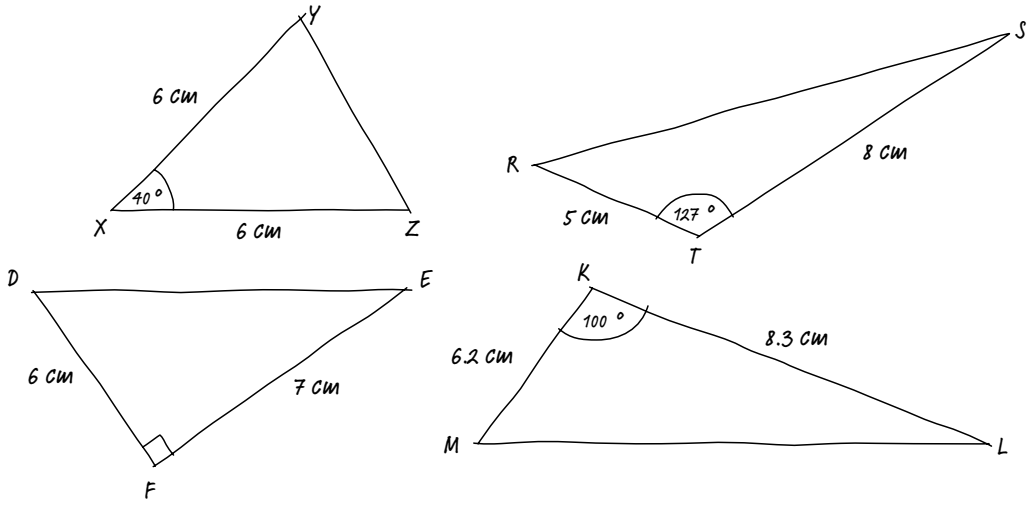
explanation 2a | explanation 2b | explanation 2c | online

6 You are given the lengths of two sides of a triangle. Which angle do you need to know to complete the information for **SAS** when the given sides are

a XY and YZ **b** AC and AB **c** PR and QR

It's a good idea to sketch the triangles first.

7 **a** Use the information in these sketches to construct the triangles.



b Measure these lengths and angles on your diagrams.

i YZ **ii** Angle XYZ **iii** RS **iv** Angle RST

v DE **vi** Angle EDF **vii** ML **viii** Angle KML

8 Construct triangle PQR where PQ = 7.3 cm, QR = 4.8 cm and angle PQR = 50°.

Measure PR and angle PRQ.

Sketch the triangles first.

9 Construct triangle ABC where AC = 8.6 cm, AB = 3.9 cm and angle BAC = 120°.

Measure BC and angle ABC.

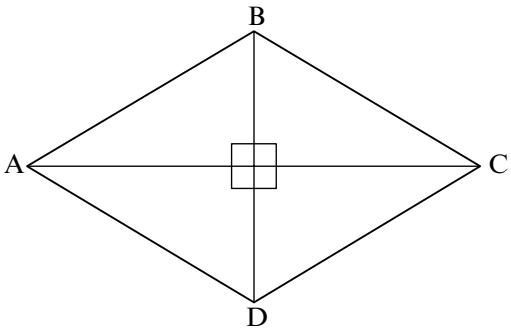
10 Construct triangle RST where RT = 5.7 cm, TS = 6.4 cm and angle RTS = 90°.

Measure RS and angle RST.

11 ABCD is a rhombus. AC and BD cross at their midpoints.

AC = 8 cm and BD = 6 cm.

Construct a triangle and use it to work out the perimeter of the rhombus. Explain how you did it.

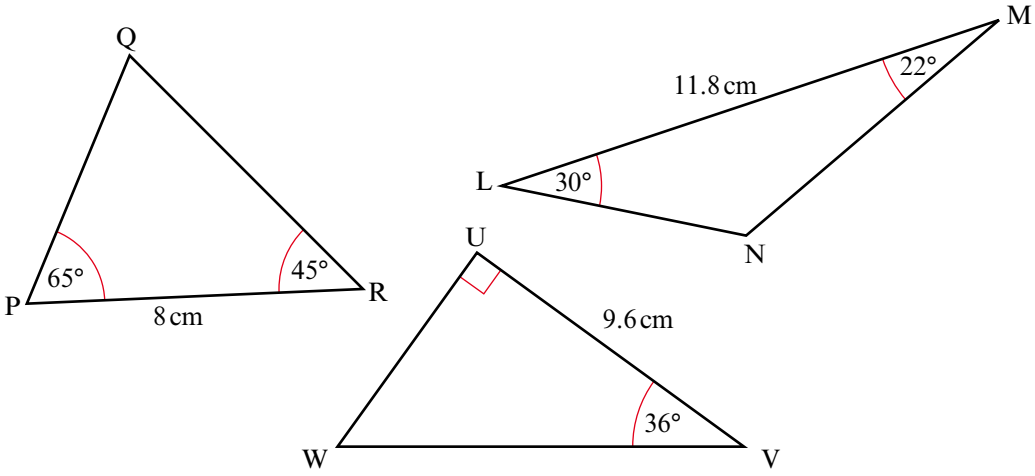


explanation 3a | explanation 3b | explanation 3c | explanation 3d | online

12 You are given the size of two angles in a triangle. Which side do you need to know to complete the information for **ASA** when the given angles are

a ∠ABC and ∠ACB **b** ∠FHG and ∠FGH **c** ∠JKL and ∠KLJ

13 **a** Use the information in these sketches to construct the triangles.



b Find these lengths from your diagrams.

i PQ **ii** QR **iii** UW **iv** WV **v** LN **vi** MN

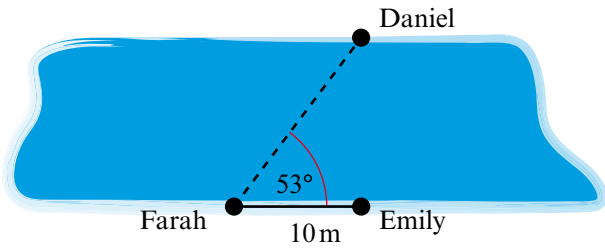
14 Construct triangle DEF where DE = 9.2 cm, ∠DEF = 45° and ∠FDE = 57°.

Measure DF.

15 Construct triangle KLM where LM = 11.3 cm, ∠KLM = 38° and ∠KML = 64°.
Measure KL.

16 Construct triangle OPQ where OP = 7.4 cm, ∠QOP = 52° and ∠QPO = 41°.
Measure PQ.

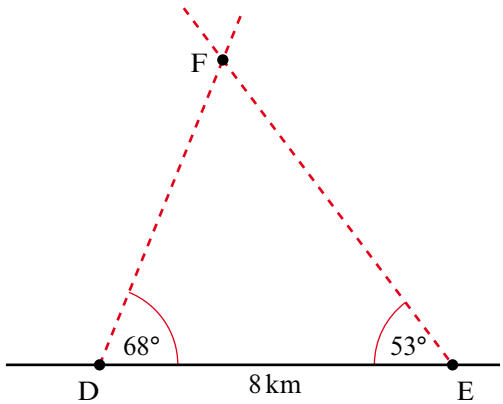
17 Daniel, Emily and Farah are trying to find the width of a river.
Emily stands to face Daniel on the opposite side of the river.
Farah measures 10 m along the river bank from Emily.
She measures the angle between the directions of Daniel and Emily as 53°.



Construct a triangle to show this information. How wide is the river?

You don't need to draw a line 10 m long! Use centimetres to represent metres.

18 The diagram shows two coastguard stations D and E, 8 km apart.
A distress flare F is sighted at the position shown.



Construct a triangle using this information. Find the distance of the flare from each of the coastguard stations.