



Triangles

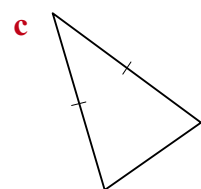
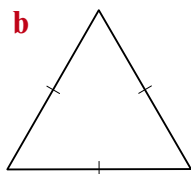
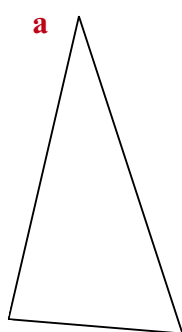
- Recognising and naming different types of triangle
- Constructing different triangles using a ruler and protractor
- Solving problems using scale drawings

Keywords

You should know

explanation 1

1 Match each triangle to a name and a set of properties.



Equilateral

Scalene

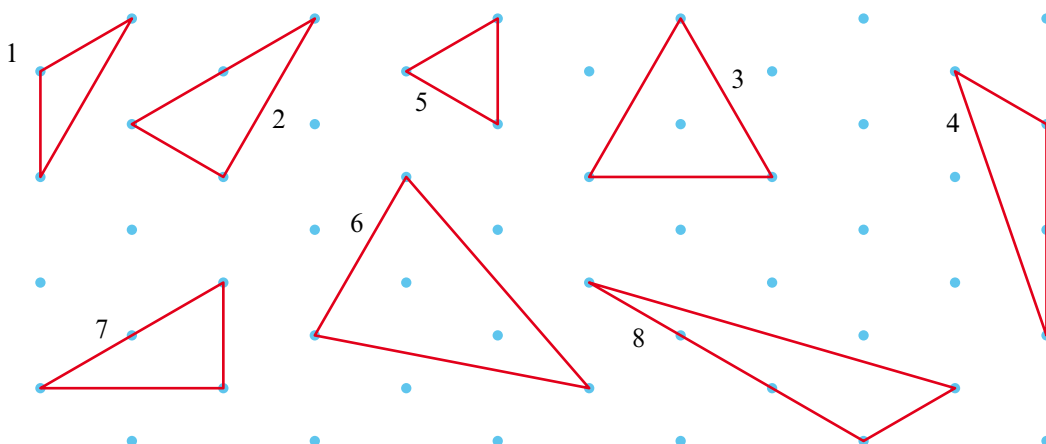
Isosceles

All angles and sides different

Three equal side lengths and three equal angles

Two equal side lengths and two equal angles

2 The triangles in the diagram are drawn on isometric dotted paper.



List the triangles that are

a Equilateral

d Obtuse-angled

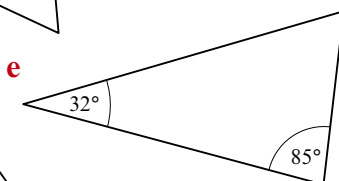
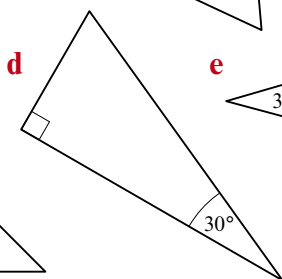
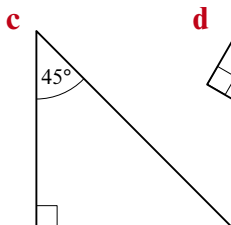
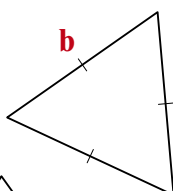
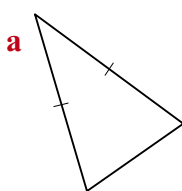
b Isosceles

e Scalene

c Right-angled

f Acute-angled

3 Pick the best label for each of these triangles from the ones given below.



Right-angled isosceles

Right-angled

Scalene

Equilateral

Isosceles

explanation 2

4 From the sketch of triangle ABC, write down the size of

a AB

b $\angle ABC$

c AC

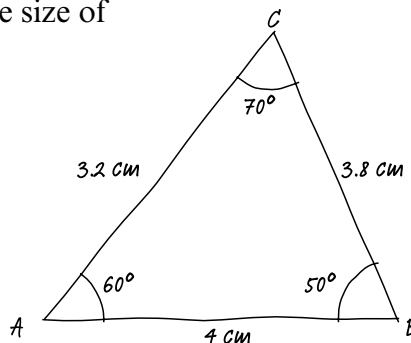
d CA

e $\angle CAB$

f $\angle BCA$

g CB

h $\angle ACB$



5 Add the measurements listed below to the sketch of triangle ABC.

AB = 6 cm

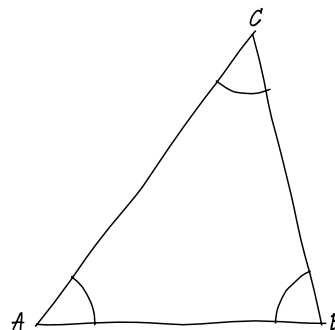
$\angle ABC = 55^\circ$

AC = 5 cm

$\angle ACB = 80^\circ$

BC = 4.3 cm

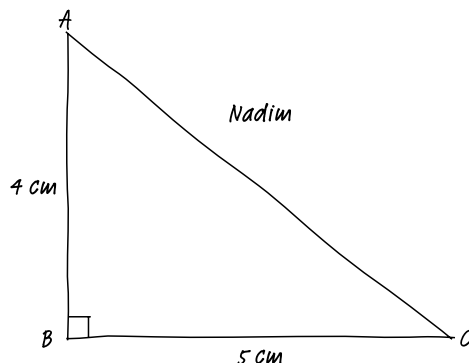
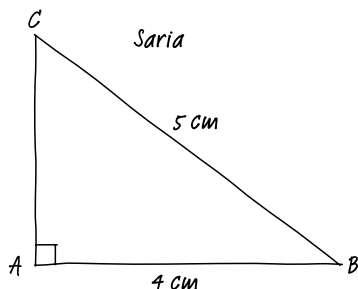
$\angle BAC = 45^\circ$



- 6** A class of pupils was asked to draw a right-angled triangle ABC with $AB = 4\text{ cm}$ and $BC = 5\text{ cm}$.

The triangles that Saria and Nadim drew are shown.

- a** Are the triangles the same?
b Who is right? Explain.



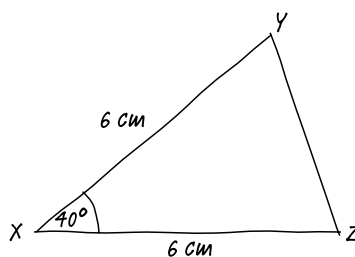
explanation 3a

explanation 3b

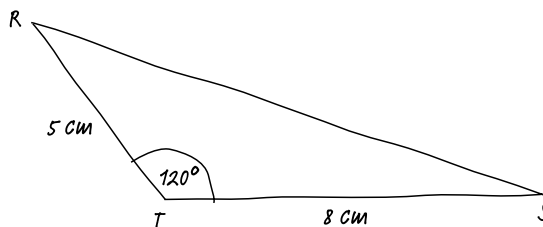
explanation 3c

explanation 3d

- 7 a** Use the information in this sketch to construct triangle XYZ with a ruler and protractor.
- b i** Find YZ .
ii Find $\angle XZY$.
iii Find $\angle XYZ$.

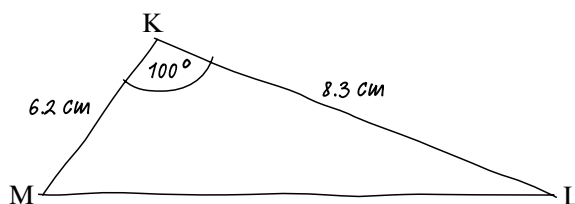


- 8 a** Use the information in this sketch to construct triangle RST with a ruler and protractor.
- b i** Find RS .
ii Find $\angle TRS$.
iii Find $\angle TSR$.



- 9 a** Use the information in this sketch to construct triangle KLM with a ruler and protractor.

- b i** Find ML.
ii Find $\angle KML$.
iii Find $\angle KLM$.



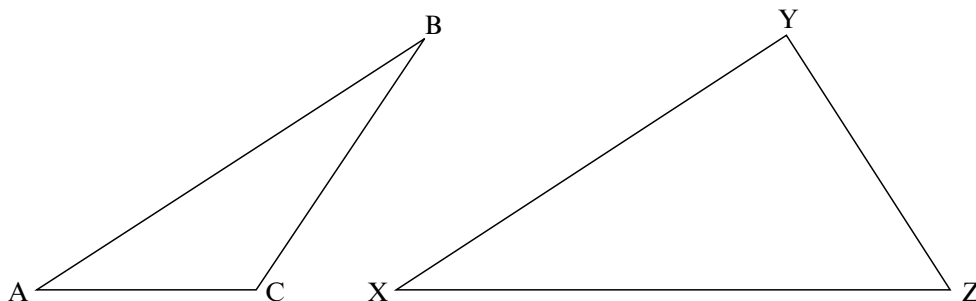
- *10 a** Sketch the triangle PQR where $PQ = 7.3$ cm, $QR = 4.8$ cm and angle $PQR = 50^\circ$.

- b** Now construct triangle PQR using a ruler and protractor.
c Measure PR and angle PRQ.

- *11 a** Sketch the triangle ABC where $AC = 8.6$ cm, $AB = 3.9$ cm and angle $BAC = 120^\circ$.

- b** Now construct triangle ABC using a ruler and protractor.
c Measure BC and angle ABC.

- 12** Here are two different triangles ABC and XYZ.



- a** Measure these.

- | | | |
|--------------|--------------------|---------------------|
| i AB | ii XY | iii BC |
| iv YZ | v Angle BAC | vi Angle YXZ |

- b** 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 the triangle?

Explain your answer.

explanation 4a

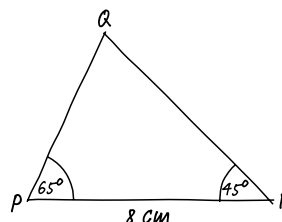
explanation 4b

explanation 4c

explanation 4d

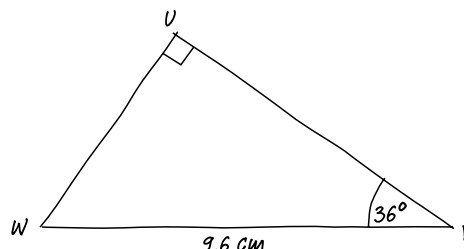
- 13 a** Use the information in this sketch to construct triangle PQR with a ruler and protractor.

- b i** Find PQ.
ii Find QR.

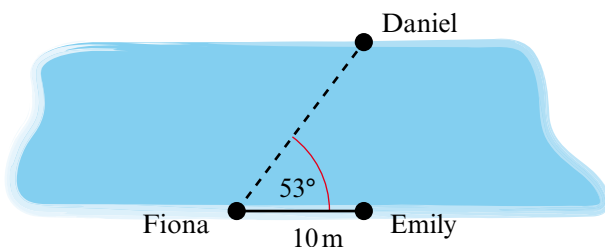


- 14 a** Use the information in this sketch to construct triangle UVW with a ruler and protractor.

- b i** Find UW.
ii Find UV.

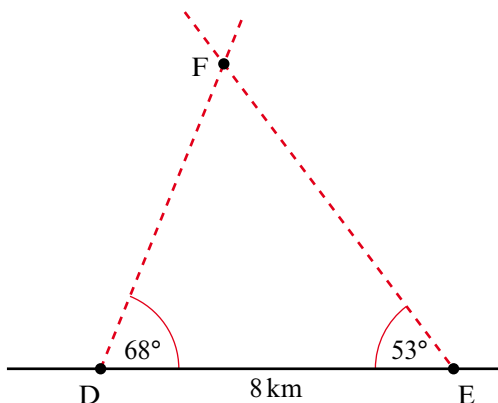


- 15** Daniel, Emily and Fiona are trying to find the width of a river. Emily and Daniel stand opposite each other on different sides of the river. Fiona measures 10 m along the river bank from Emily. She measures the angle between the directions of Daniel and Emily as 53° .



- a** Using 1 cm to represent 1 m, construct a triangle with a ruler and protractor to show this information.
b Find the distance between Daniel and Emily on your triangle.
c How wide is the river?

- 16 a** Sketch the triangle DEF where $DE = 9.2\text{ cm}$, $\angle DEF = 45^\circ$ and $\angle FDE = 57^\circ$.
- b** Construct triangle DEF using a ruler and protractor.
- c** Measure DF.
- 17 a** Sketch the triangle KLM where $LM = 11.3\text{ cm}$, $\angle KLM = 38^\circ$ and $\angle KML = 64^\circ$.
- b** Construct triangle KLM using a ruler and protractor.
- c** Measure KL.
- 18** The diagram shows two coastguard stations D and E, 8 km apart. A distress flare F is sighted at the position shown.



- a** Using 1 cm to represent 1 km, construct a triangle with a ruler and protractor to show this information.
- b** Find DF and EF.
- c** Find the actual distance of the flare from each of the coastguard stations.