Planner

Constructions (2)

- Constructing a triangle given the lengths of all three sides
- Constructing a shape made of triangles

Keywords

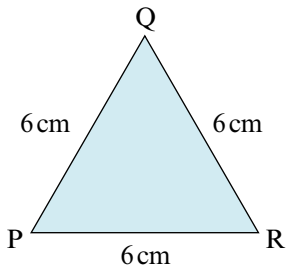
You should know

explanation 1a | explanation 1b | explanation 1c | explanation 1d | online

1 Construct each of these triangles.
Use a ruler and a pair of compasses. Do not use a protractor.

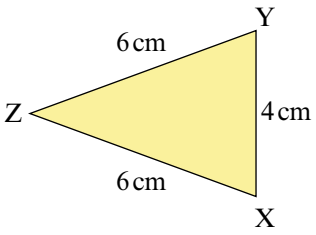
a **i** Triangle PQR
PQ = 6 cm, PR = 6 cm, QR = 6 cm

ii What type of triangle is PQR?



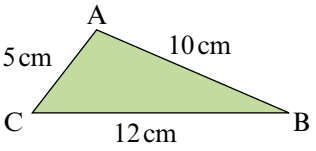
b **i** Triangle XYZ
XY = 4 cm, XZ = 6 cm, YZ = 6 cm

ii What type of triangle is XYZ?



c **i** Triangle ABC
AB = 10 cm, AC = 5 cm, BC = 12 cm

ii What type of triangle is ABC?



2 Use a ruler and a pair of compasses only for this question.

a Try to construct triangle LMN where LM = 10 cm, LN = 4 cm and MN = 3 cm.

b Is it possible to construct triangle LMN? Give a reason for your answer.

3 The table shows the side lengths of some triangles. Which triangles can be constructed?

Triangle	Dimensions
ABC	AB = 15 cm, AC = 9 cm, BC = 9 cm
DEF	DE = 10 cm, DF = 10 cm, EF = 10 cm
GHI	GH = 20 cm, GI = 9 cm, HI = 7 cm
JKL	JK = 7 cm, JL = 6 cm, KL = 15 cm
MNO	MN = 10 cm, MO = 4 cm, NO = 10 cm

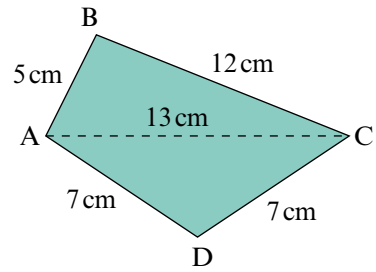
explanation 2a explanation 2b explanation 2c

4 Quadrilateral ABCD has these dimensions.

AC = 13 cm AD = 7 cm

AB = 5 cm CD = 7 cm

CB = 12 cm



a Using a ruler, draw the line AC.

b Using a pair of compasses, construct the quadrilateral ABCD.

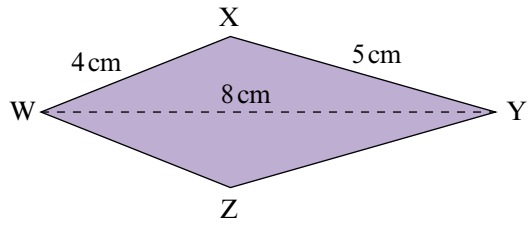
c Measure BD.

5 A kite WXYZ has these dimensions.

WY = 8 cm

WX = 4 cm

YX = 5 cm



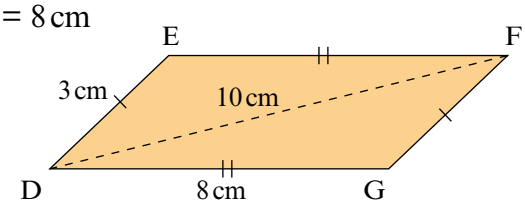
a Using a ruler, draw the line WY.

b Using a pair of compasses, construct kite WXYZ.

c Measure XZ.

6 A parallelogram DEFG has these dimensions.

DF = 10 cm DE = 3 cm DG = 8 cm

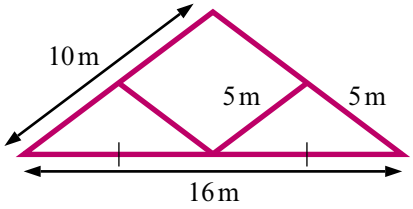


a Using a ruler, draw the diagonal DF.

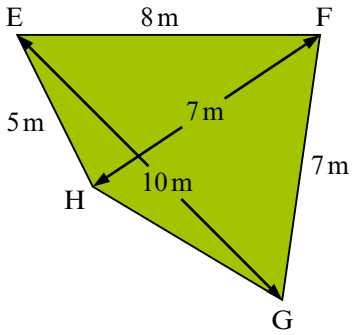
b Using a pair of compasses, construct parallelogram DEFG.

7 The diagram shows a triangular timber roof frame.

Using a ruler and a pair of compasses, construct a diagram of the frame.
Use a scale of 1 : 200.



8 The diagram shows a garden EFGH.
EG = 10 m and FH = 7 m



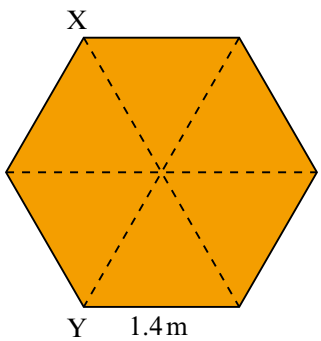
a Using a ruler and a pair of compasses, construct a diagram of the garden.
Use a scale of 1 : 125.

b Measure the length GH on your diagram.

c What is the length GH in the real garden?

Begin by constructing the triangle EFG.

9 A garden designer has drawn a patio in the shape of a regular hexagon.



a Using a ruler and a pair of compasses, construct a scale drawing of the patio.
Use a scale of 1 : 35.

b What is the distance XY on the real patio?

Remember that a hexagon is made up of six equilateral triangles