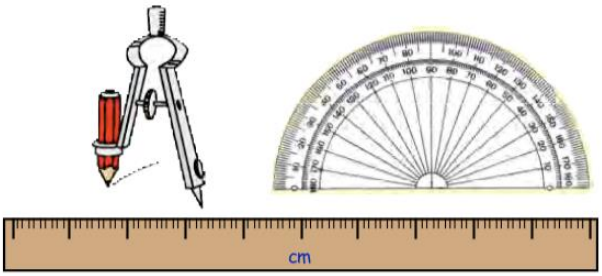
S1 Home Learning

Shape
2 weeks

There are 2 ways of drawing triangles :-

- Making a rough sketch.
- Making an **accurate drawing** using a ruler, a pair of compasses and a protractor.



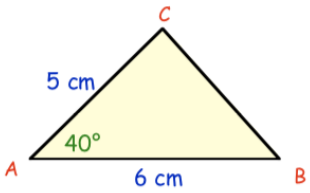
You need to be given **3 pieces of information** about a triangle before you can begin to draw it.

https://youtu.be/5j9YVQsofiw - video notes for drawing triangles with 2 sides and an angle

A. Two Sides and the Included Angle

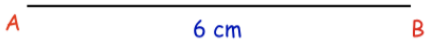
(the angle between the 2 sides)

Shown opposite is a **rough sketch** of ΔABC.

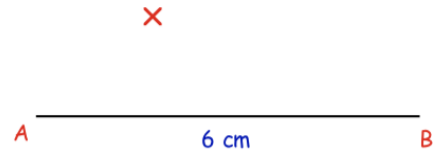


To draw it accurately :-

Step 1 :- Draw line AB = 6 cm.

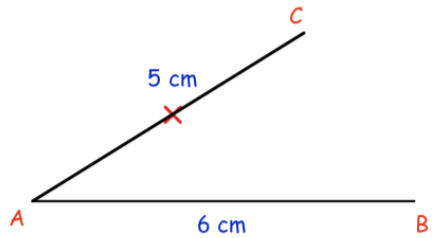


Step 2 :- Put your protractor at A and mark an angle of 40°.

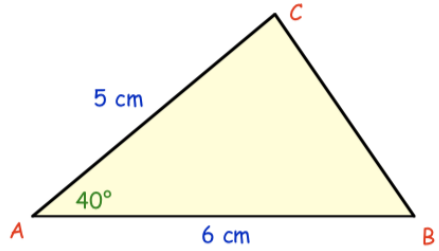


Step 3 :- Draw line AC, from A through the X, to point C.

Make sure it is 5 centimetres long.



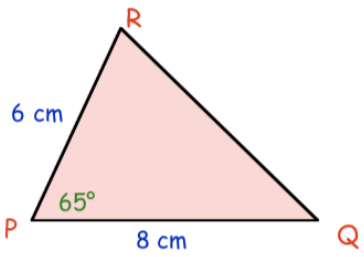
Step 4 :- Join B to C to complete the triangle.



Exercise - you will need a ruler and protractor

1. On the right is a rough sketch of ΔPQR.

Follow the instructions to draw it **accurately** :-



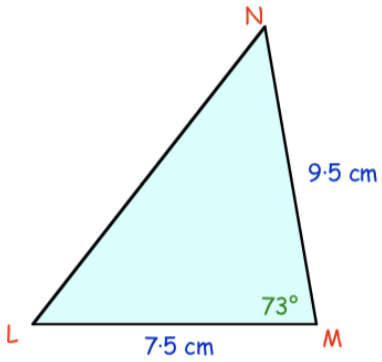
Step 1 :- Draw line PQ = 8 cm.

Step 2 :- Put your protractor at P and mark (with an X) an angle of 65°.

Step 3 :- Draw line PR, from P through the X, to point R.
(*Make sure it is 6 centimetres long*).

Step 4 :- Join R to Q to complete the triangle,

2.



Shown is a sketch of ΔLMN.
Draw it **accurately** using the following instructions :-

Step 1 :- Draw line LM = 7·5 cm.

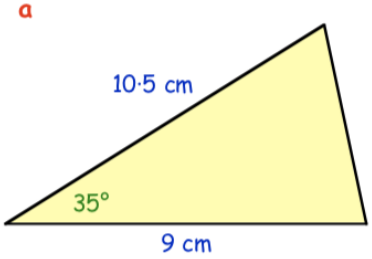
Step 2 :- Put your protractor at M and mark (with an X) an angle of 73°.

Step 3 :- Draw line MN, from M through the X, to point N.
(*Make sure it is 9·5 centimetres long*).

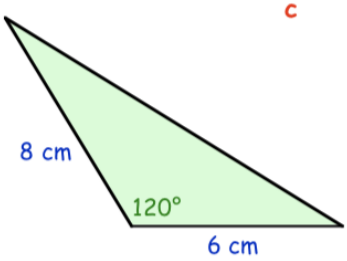
Step 4 :- Join N to L to complete the triangle,

3. Make **accurate** drawings of the following triangles :-

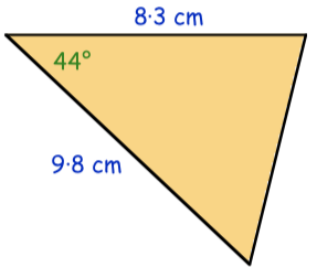
a



b



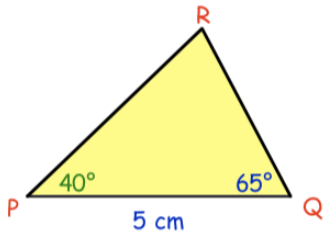
c



https://youtu.be/9CAoe5xP6MU - **video notes for drawing triangles with 2 angles and a side**

B. Two Angles and a Side

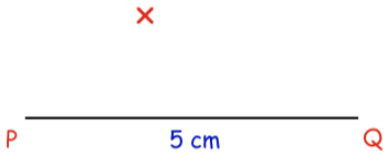
Shown opposite is a rough sketch of ΔPQR.



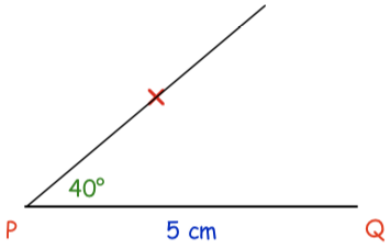
To draw it accurately :-

Step 1 :- Draw line PQ = 5 cm.

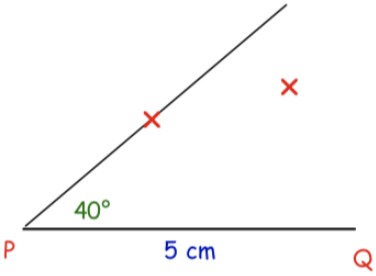
Step 2 :- Put your protractor at P and mark an angle of 40°.



Step 3 :- Draw line from P through the point X.

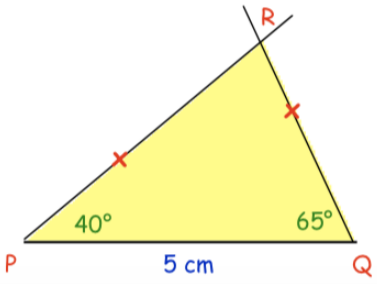


Step 4 :- Now put your protractor at Q and mark an angle of 65°.



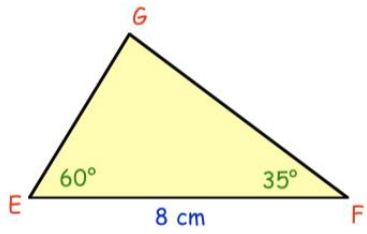
Step 5 :- Finally, draw the line from Q through your new X point.

(Mark the point where the two lines meet with the letter R).



Exercise - you will need a ruler and protractor

1. On the right is a rough sketch of ΔEFG.
Follow the instructions to draw it **accurately** :-



Step 1 :- Draw line EF = 8 cm.

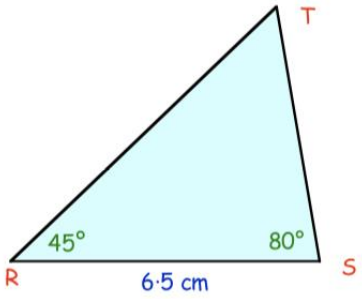
Step 2 :- Put your protractor at E and mark (with an X) an angle of 60°.

Step 3 :- Draw a line from E through the X,

Step 4 :- Put your protractor at F and mark (with an X) an angle of 35°.

Step 5 :- Draw a line from F through the X, to meet your first line at point G.

2.



Shown is a sketch of ΔRST.
Draw it **accurately** using the following instructions :-

Step 1 :- Draw line RS = 6·5 cm.

Step 2 :- Put your protractor at R and mark (with an X) an angle of 45°.

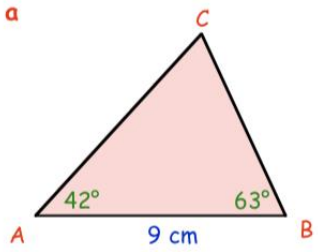
Step 3 :- Draw a line from R through the point X.

Step 4 :- Put your protractor at S and mark (with an X) an angle of 80°.

Step 5 :- Draw a line from S through the point X and mark where the 2 lines cross with a T.

3. Make **accurate** drawings of the following triangles :-

a



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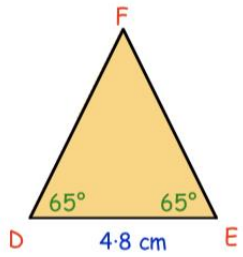

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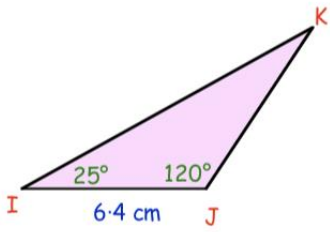
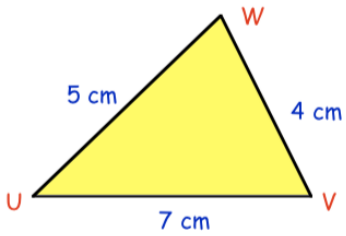


https://youtu.be/o13HKzmYSUA - **video notes for drawing triangles with 3 sides**

3. Three Sides

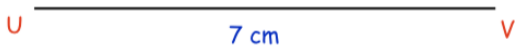
Shown opposite is a rough sketch of ΔUVW.



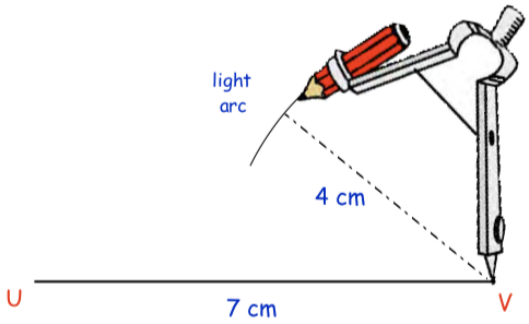
To draw it accurately :-

You will need a ruler and a pair of compasses.

Step 1 :- Draw line UV = 7 cm

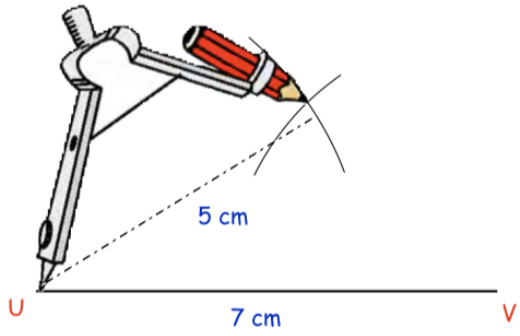


Step 2 :- Set your compasses to 4 cm, place the compass point on V and draw a light arc as shown.

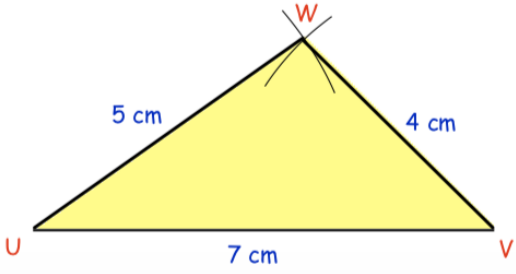


Step 3 :- Now set your compasses to 5 cm, place the compass point on U and draw a 2nd light arc.

(Call the point where the 2 arcs meet W)

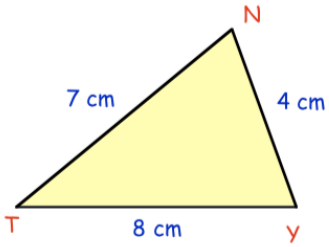


Step 4 :- Now simply use your ruler to join U to W and V to W.



Exercise - you will need a ruler and a compass

1. On the right is a rough sketch of ΔTYN.
Follow the instructions to draw it **accurately** :-

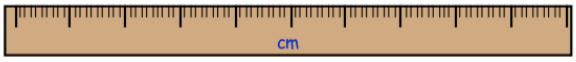


Step 1 :- Draw line TY = 8 cm.

Step 2 :- Set your compasses to 7 cm, place the compass point on T and draw a light arc.

Step 3 :- Now set your compasses to 4 cm, place the compass point on Y and draw a 2nd arc.

Step 4 :- Call the point where the arcs meet N and join N to T and to Y.



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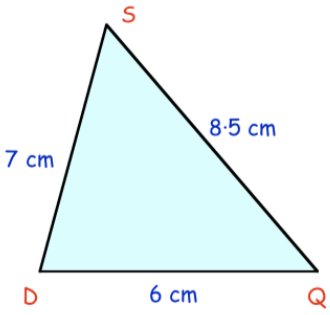


Shown is a sketch of ΔDQS.
Draw it **accurately** using the following instructions :-

Step 1 :- Draw line DQ = 6 cm.

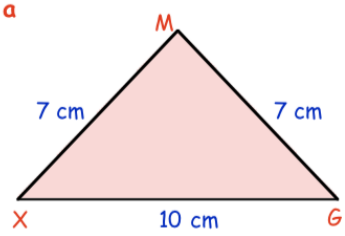
Step 2 :- Set your compasses to 7 cm, place the compass point on D and draw a light arc.

Step 3 :- Now set your compasses to 8·5 cm, place the compass point on Q and draw a 2nd arc.

Step 4 :- Call the point where the arcs meet S and join S to D and to Q.

3. Make **accurate** drawings of the following triangles :-

a



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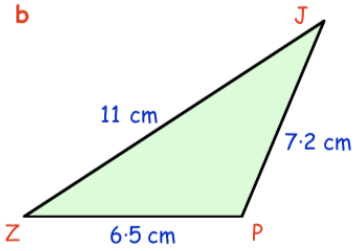
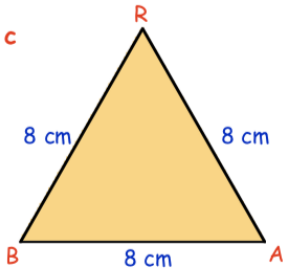


c



Summary Exercise

Topic in a Nutshell

You need a ruler, a protractor and a pair of compasses.

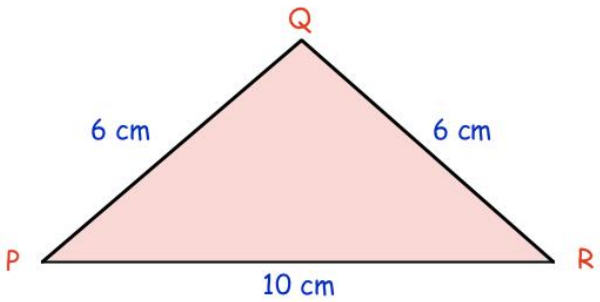
1. Draw triangle ΔABC with

   $AB = 7$ cm, $BC = 6$ cm and $\angle ABC = 70°$.

2. Draw triangle ΔDEF with

   $DE = 6$ cm, $\angle FDE = 40°$ and $\angle DEF = 80°$.

3. a Make an **accurate** drawing of the ΔPQR shown below.

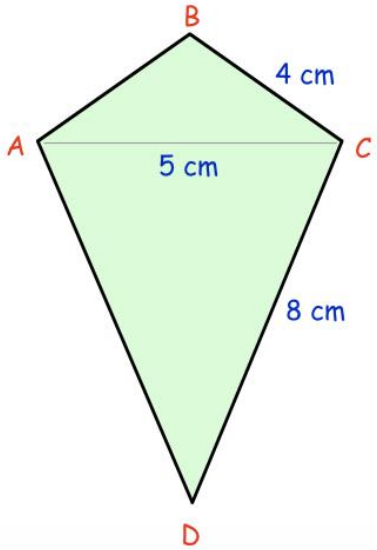


   b What kind of triangle is ΔPQR ?

   c Use a protractor to measure the size of each of the three angles.

4. Use a ruler and pair of compasses to draw an equilateral triangle with all three sides 6 centimetres long.

5. Use a **ruler** and **compasses** to make an accurate full size drawing of this kite as follows :-



   a Start by drawing $AC = 5$ centimetres.

   b Now draw triangle ABC, then triangle ADC using your compasses.

   c Use your protractor to measure the size of each of the 4 angles of your kite.