

CONSTRUCTING TRIANGLES

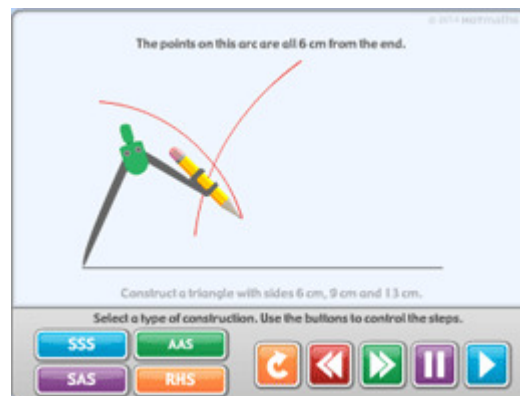
You will need: Pencil, paper, ruler, protractor, compasses

In each task you will construct a triangle using the given information. In some tasks, you can use the widget **Constructing triangles** to guide you through the steps.

Label the vertices and write the given side and angle measurements on your constructions.

After constructing each triangle, compare it with other students' constructions. Are the triangles congruent? Are they different? Why or why not?

Finally, choose the correct ending for the statement about the triangles and explain your choice.



TASK 1

Given all side lengths

Open the widget and click on SSS to see how to construct a triangle given three side lengths.

Construct $\triangle ABC$ so that $AB = 8$ cm, $BC = 12$ cm and $CA = 7$ cm.

Compare your triangle with those that other students have constructed and circle the correct option:

The triangles must be congruent / must be different / could be congruent or different.

Justify your choice: _____

TASK 2

Given two sides and included angle

Click on SAS in the widget to see how to construct a triangle given two sides and the included angle.

Construct $\triangle DEF$ given that $DE = 8$ cm, $EF = 12$ cm and $\angle E = 50^\circ$.

Compare your triangle with those that other students have constructed and circle the correct option:

The triangles must be congruent / must be different / could be congruent or different.

Justify your choice: _____

TASK 3**Given two sides and an angle that is NOT included**

Construct $\triangle XYZ$ given that $XY = 10$ cm, $YZ = 12$ cm and $\angle Z = 50^\circ$.

Compare your triangle with those that other students have constructed and circle the correct option:

The triangles must be congruent / must be different / could be congruent or different.

Justify your choice: _____

TASK 4**Given the hypotenuse and another side**

Click on RHS in the widget to see how to construct a right-angled triangle given the hypotenuse and another side.

Construct $\triangle PQR$ given that $\angle P = 90^\circ$, $QR = 13$ cm and $PR = 12$ cm.

Compare your triangle with those that other students have constructed and circle the correct option:

The triangles must be congruent / must be different / could be congruent or different.

Justify your choice: _____

TASK 5**Given two angles and a side**

Click on AAS in the widget to see how to construct triangle given two angles and a side.

Construct $\triangle TUV$ given that $\angle T = 45^\circ$, $\angle U = 70^\circ$, and $TU = 12$ cm.

Compare your triangle with those that other students have constructed and circle the correct option:

The triangles must be congruent / must be different / could be congruent or different.

Justify your choice: _____

TASK 6**Given all three angle sizes**

Construct $\triangle LMN$ given that $\angle L = 40^\circ$, $\angle M = 80^\circ$, and $\angle N = 60^\circ$.

Compare your triangle with those that other students have constructed and circle the correct option:

The triangles must be congruent / must be different / could be congruent or different.

Justify your choice: _____
