







# Instructions for test 4



We want to prove what the last test is. This is relevant to right angled triangles. So we are going to draw two right angled triangles on GeoGebra. You need to follow these steps below and answer the **questions** to help you find out what the 4<sup>th</sup> test is. Write all answers in your exercise book and take a screenshot of your triangles at the end.

a) How to draw a right-triangle

1. Using the input field (which is on the left of the grid), type the coordinates of these three points separately then press enter;  $(4, 4)$ ,  $(4, 0)$  and  $(0, 0)$ .
2. We need to join these points to form the triangle. Click the *Line through two points* icon  then click on the *segment* icon  . To join the lines, you need to click on point then to another. Repeat this till you get all three lines joining.

3. Now we want to find the length of two lines; the hypotenuse and **one** other side. To do this, click on  then select the *distance or length* icon  . You will need to click on the lines to find the length.

4. Now we are going to measure all three angles. Click on  then select  . You will need to select three points at a time to find the measure of the angle in between. Repeat this till all three angles are found.

b) If you need to zoom in, click on  then  .

c) Now that we have drawn the first right angled triangle, we are going to use the same steps in a) to draw the second right angled triangle. This time we will be using these coordinates;  $(7, 2)$ ,  $(13, 2)$  and  $(13, 8)$ . When you find the lengths, make sure it is the same two sides as the first one.

Once you have completed this, answer these questions:

- What do you notice about the angles in both triangles?
- Using the 2 side lengths for each triangle, would you be able to find the third length for both triangles using mathematical reasoning/calculations?

d) Check if you calculated the third length correctly by using step 3 in a).

- What do you notice about the sides when you compare both triangles? Are they in proportion? Prove it!
- Using all this information, how would you summarise the 4<sup>th</sup> test? Make sure you write it in you exercise book.