



Egyptian triangle

Analyzing

The Pythagorean theorem - the students check whether the walls in the classroom are built at right angle.



The Egyptian triangle is often used by workers on a construction site, as it is easy to remember the lengths of its sides and use even primitive tools to check whether walls or other elements on site are built at right angles. In this way, the workers make practical use of the information that the Egyptian triangle (3,4,5) is a right triangle.



Counting

The similar triangles - the students measure the height of a window.



According to the theorem about the similarity of triangles, the ratios of pairs of respective quantities are equal.

Therefore, having the following data: distance between the object and your eyes (marked as "x" in the illustration) and between the window and your eyes (d), as well as the height of the object (h), it is easy to calculate the height of the window (H).





Analyzing

The similar triangles: the students measure shadows.

Objects and their shadows form similar right triangles; therefore, the quotients of the lengths of the catheti should be the same for all of them.

The test results will be similar, but not identical. This is caused by measurement uncertainty.

Congruent triangles are triangles, the internal angles of which are of the same measure, and the triangles' sides are of the same length.

The property of congruent triangles: If two triangles have two angles of the same measures, and the segments between them are of the same length, then these triangles are congruent.



Get ready for Qs

Counting

Congruent triangles: measuring the width of a road or a river.

In this task, you have made use of the property of congruent triangles. By moving outdoors, you have built two right triangles with a side of 20 steps and with acute angles of equal measures (apex angles). Therefore, these triangles are congruent, so $y = z$.





Pythagorean theorem

Analyzing

The Pythagorean theorem - the students check whether the walls in the classroom are built at right angle.





Counting

Congruent triangles: measuring the width of a road or a river.

If the arms of an angle are crossed by straight lines parallel to each other, then the respective segments determined by these straight lines on one arm of the angle are proportional to the respective segments determined by these straight lines on the other arm of the angle.