404 - Top Edges

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MATHS / 2D GEOMETRY

LOGIFACES
METHODOLOGY
Erasmus+

TEACHER
Logifaces

DESCRIPTION

Students calculate the lengths of the top edges of the blocks, using the standard units.
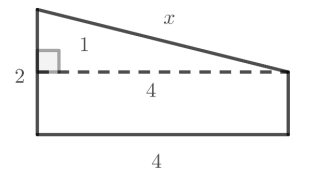
SOLUTIONS / EXAMPLES

The length of the top edge depends on the length of the vertical edges connecting to the end vertices of the edge.
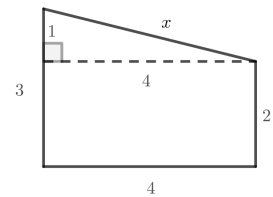
SOLUTIONS

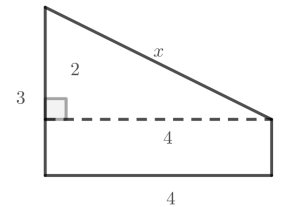| vertical edges	length of the top edge (in standard unit)	length of the top edge (real length in cm)
11	4	5
22	4	5
33	4	5
21	$\sqrt{17} \approx 4.12$	$\frac{5\sqrt{17}}{4} \approx 5.15$
32	$\sqrt{17} \approx 4.12$	$\frac{5\sqrt{17}}{4} \approx 5.15$
31	$\sqrt{20} \approx 4.47$	$\frac{5\sqrt{20}}{4} \approx 5.59$

CALCULATIONS

Calculating the lengths using Pythagorean theorem:

case 21 and case 32 $\qquad 1^2 + 4^2 = x^2 \Rightarrow x^2 = 17 \Rightarrow x = \sqrt{17}$

case 31 $\qquad 2^2 + 4^2 = x^2 \Rightarrow x^2 = 20 \Rightarrow x = \sqrt{20}$

PRIOR KNOWLEDGE

Pythagorean theorem

RECOMMENDATIONS / COMMENTS

The calculations can be verified using GeoGebra, see exercise 528 - Read the Results in GeoGebra.
For individual work the teacher can differentiate between students. Students can choose fewer or more pieces to arrange based on the level of their knowledge. The lengths of the edges of blocks 111, 222 or 333 are easier to calculate than the others.