

Grades 5-8 (S), 9-12 (S)

Duration: 10-15 min

Tools: one block / student or pair

Individual / Pair work

Keywords: Area, Rectangle, Trapezium

409 - Area of Rectangular Faces



MATHS / 2D GEOMETRY



LOGIFACES
METHODOLOGY
Erasmus+

TEACHER
Logifaces

2019-1-HU01-KA201-0612722019-1

DESCRIPTION

Students calculate the areas of the vertical faces of the Logifaces blocks, using the standard units.

LEVEL 1 blocks 111, 222, 333

LEVEL 2 blocks 112, 122, 113, 133, 223, 233

LEVEL 3 blocks 123, 132

SOLUTIONS / EXAMPLES

LEVEL 1

block 111:

all faces are rectangles, area of each face: $4 \times 1 = 4$

block 222:

all faces are rectangles, area of each face: $4 \times 2 = 8$

block 333:

all faces are rectangles, area of each face: $4 \times 3 = 12$

LEVEL 2

block 112:

one rectangular face, area of each face: $4 \times 1 = 4$

two trapezium faces, area of one face: $\frac{1}{2} \times (1 + 2) \times 4 = 6$

block 122:

one rectangular face, area of each face: $4 \times 2 = 8$

two trapezium faces, area of one face: $\frac{1}{2} \times (1 + 2) \times 4 = 6$

block 223:

one rectangular face, area of each face: $4 \times 2 = 8$

two trapezium faces, area of one face: $\frac{1}{2} \times (2 + 3) \times 4 = 10$

block 233:

one rectangular face, area of each face: $4 \times 3 = 12$

two trapezium faces, area of one face: $\frac{1}{2} \times (2 + 3) \times 4 = 10$

block 113:

one rectangular face, area of each face: $4 \times 1 = 4$

two trapezium faces, area of one face: $\frac{1}{2} \times (1 + 3) \times 4 = 8$

block 133:

one rectangular face, area of each face: $4 \times 3 = 12$

two trapezium faces, area of one face: $\frac{1}{2} \times (1 + 3) \times 4 = 8$

LEVEL 3

block 123 or 132:

three different trapezium faces:

perimeter of the trapezium face with vertical edges 12: $\frac{1}{2} \times (1 + 2) \times 4 = 6$

perimeter of the trapezium face with vertical edges 13: $\frac{1}{2} \times (1 + 3) \times 4 = 8$

perimeter of the trapezium face with vertical edges 23: $\frac{1}{2} \times (2 + 3) \times 4 = 10$

PRIOR KNOWLEDGE

Area of rectangle, Area of trapezium

RECOMMENDATIONS / COMMENTS

This exercise develops the skills of decomposition of 3D geometrical objects into 2D geometrical shapes and develops visual perception.

Exercise [410 - Heights and Areas](#) is recommended after this exercise. That exercise shows an interesting connection between the sum of the areas of the quadrilateral faces and the sum of the lengths of the vertical edges.

The different blocks can be given to different students.

The calculations can be verified using GeoGebra, see exercise [528 - Read the Results in GeoGebra](#).