LESSON PLAN

Subject: Mathematics

Topic: The area of triangle

Age of students: 16

Language level: B1, B2

Time: 45 min

Contents aims:
After completing the lesson, the student will be able to:
Describe what the area of the triangle is.
Determine different formulas of triangle area.
Work out the area of a triangle.

Language aims:
After completing the lesson, the student will be able to:
Use new vocabulary within the topic.
Interpret and communicate mathematics.

Pre-requisites:

- Types and properties of triangles;
- Formulae for the area of triangle.

$$S=\frac{a^2\sqrt{3}}{4};\quad S=\frac{ah_a}{2};\quad S=\sqrt{p(p-a)(p-b)(p-c)};\quad S=\frac{1}{2}ab\sin C;\quad S=\frac{ab}{2}$$

Key words: triangle, area of triangle, side of triangle, height.

Materials: Worksheet “Area of the triangle”.

Procedure steps:

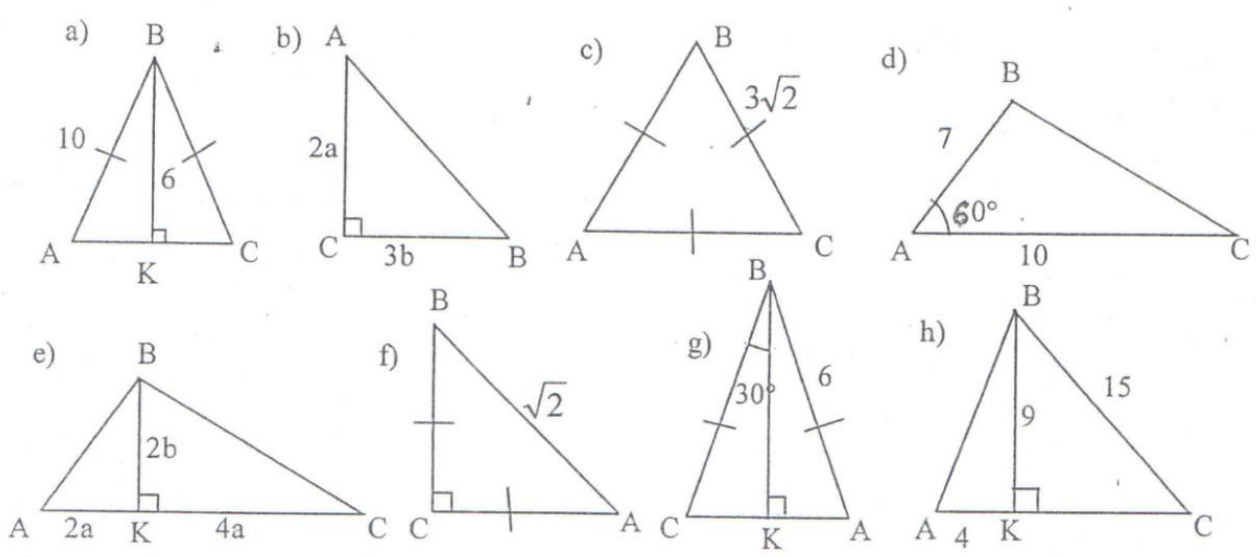
1. Students do the exercise 1 in pairs.
2. Students read and compare.
3. Students do the exercise 2 in pairs.
4. Students read and compare the results.
5. Teacher reads the tasks of game „Bingo”, students solve them and search the answers in the table.

Attachment:

Area of the triangle

1. Write down all the possible formulae for calculating the area of a triangle!

2. Work out the area of the given triangles! Choose the correct answer!
Complete the table!



1) $\frac{18\sqrt{3}}{4}$	5) 6ab	9) 72	13) 3ab
2) $\frac{35\sqrt{3}}{2}$	6) $35\sqrt{3}$	10) 2a + 3b	14) $\sqrt{2}$
3) $9\sqrt{3}$	7) $\frac{1}{2}$	11) 1	15) $18\sqrt{2}$
4) 128	8) 12ab	12) 48	16) $36\sqrt{3}$

Number of the task	a	b	c	d	e	f	g	h
Number of the answer								

BINGO

1. If the longest side of the right isosceles triangle is $6\sqrt{2}$, its area is … 18
2. If each side of the triangle is 4, its area is … $4\sqrt{3}$
3. If the sides of the triangle are 5cm, 12cm and 13 cm, its area is … $30cm^2$
4. If the area of the triangle is 12 and its longest side is 6, its shortest height is … 4
5. If sides of the triangle are 5m, 6m and 7m, its area is … $6\sqrt{6}\ m^2$
6. If two sides of the triangle are 4cm and 5cm and angle between them is 30°, its area is … $5\ cm^2$
7. If an angle of the triangle is 45° and its adjacent sides are 8 cm and 1,5 dm, its area is … $30\sqrt{2}\ cm^2$
8. If the area of the equilateral triangle is $9\sqrt{3}$, its side is … 6
9. If the legs of the right triangle are 2 cm and $2\sqrt{3}$ cm long, the height to the hypotenuse is … $\sqrt{3}$ cm
10. If a leg in the right triangle is 12 cm and its area is $18\sqrt{5}\ cm^2$, the other leg is … $3\sqrt{5}$ cm

$6\sqrt{6}\ m^2$	3 dm	7	$5\sqrt{7}\ cm^2$	13
6	$30cm^2$	12 cm	$4\sqrt{3}$	$5\ cm^2$
$45m^2$	$14\ dm^2$	$3\sqrt{5}$ cm	$15\sqrt{2}$	3m
8 cm	18	$10cm^2$	4	14
2	$\sqrt{3}$ cm	1 m	20 cm	$30\sqrt{2}\ cm^2$

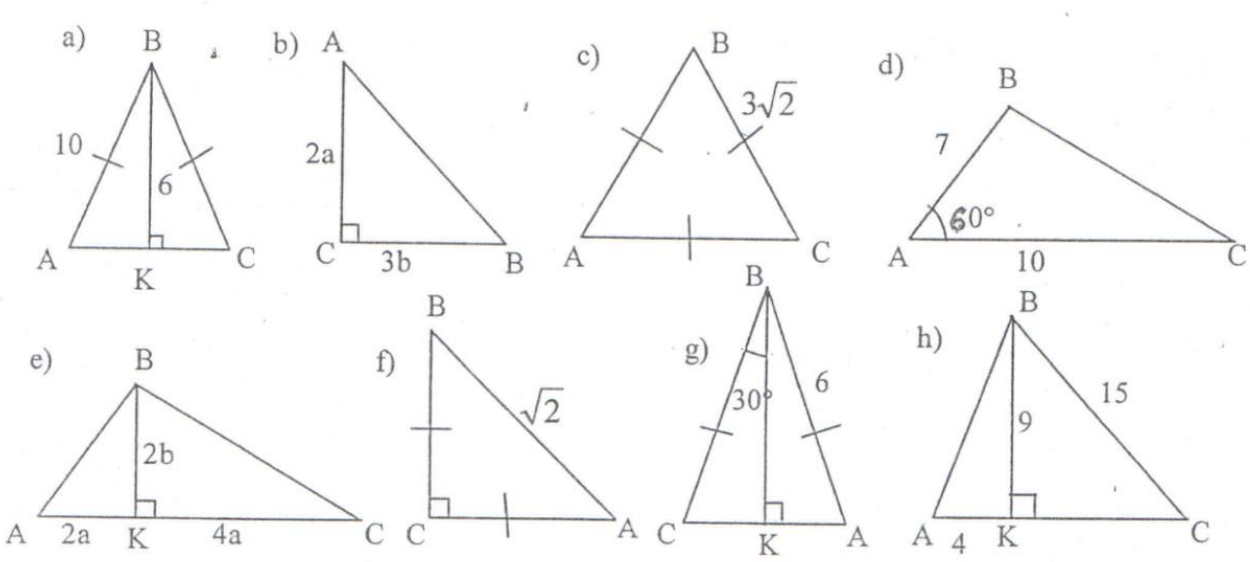
Hometask: Draw three different triangles (of different types) and solve their area.

Area of the triangle (answers)

1. Write down all the possible formulae for calculating the area of a triangle!

$$S=\frac{a^2\sqrt{3}}{4};\quad S=\frac{ah_a}{2};\quad S=\sqrt{p(p-a)(p-b)(p-c)};\quad S=\frac{1}{2}ab\sin C;\quad S=\frac{ab}{2}$$

2. Work out the area of the given triangles! Choose the correct answer! Complete the table!



1) $\frac{18\sqrt{3}}{4}$	5) 6ab	9) 72	13) 3ab
2) $\frac{35\sqrt{3}}{2}$	6) $35\sqrt{3}$	10) 2a + 3b	14) $\sqrt{2}$
3) $9\sqrt{3}$	7) $\frac{1}{2}$	11) 1	15) $18\sqrt{2}$
4) 128	8) 12ab	12) 48	16) $36\sqrt{3}$

Number of the task	a	b	c	d	e	f	g	h
Number of the answer	12	13	1	2	5	7	3	9

BINGO

$6\sqrt{6}\ m^2$				
6	$30cm^2$		$4\sqrt{3}$	$5\ cm^2$
		$3\sqrt{5}\ cm$		
	18		4	
	$\sqrt{3}\ cm$			$30\sqrt{2}\ \ cm^2$