LESSON PLAN

Subject: Mathematics

Topic: Algebraic expressions

Age of students: 16

Language level: B1, B2

Time: 45 min

Content aims:
After completing the lesson, the student will be able to:
Apply skills to read and write the expressions.
Understand different algebraic expressions.
Factorise the algebraic expressions.
Construct algebraic formulas.

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

Pre-requisites:
- Algebraic formulas;
- The ways of factorising the expressions.

Key words: sum, difference, square, cube, increased, decreased, formula, factorising

Materials: Worksheet "Algebraic expressions".

Procedure steps:
1. Students do the exercise 1 in pairs.
2. Students read, listen, compare and discuss their point of view.
3. Students do the exercise 2 individually.
4. Students read, listen, compare and discuss their point of view.
5. Teacher revises the ways of factorising the expressions (taking common factor before the brackets; using formulas; grouping)
6. Students do the exercise 3 in pairs.
7. Students read, listen and compare.
8. Students play the game "Domino".

Attachment:

Algebraic expressions

1. *Write an algebraic expression for the quantity:*

a) Fifteen less than twice a number.

b) Three times a number, increased by seventeen.

c) The product of nine and a number, decreased by six.

d) Thirty divided by seven times a number.

e) Jenny earns $30 a day working part time at a supermarket. Write an algebraic expression to represent the amount of money she will earn in d days.

f) Three more than half a number.

g) One-fifth of a number reduced by double of the same number.

h) The first angle of a triangle is 16 degrees less than the second angle. The angle is double the second angle. Write algebraic expressions for these relations.

i) A census of a middle school found that the number of 7th graders was fifty more than the number of eighth graders. The number of sixth graders was three-fourths the number of eighth graders. Write algebraic expressions for these relations.

2. *Determine whether the statement is true or false:*

a) The square of a number is greater than the number.

b) The square root of a number is less than the number.

c) The order of addends matters.

d) 12 divided by a number is less than 12.

e) 12 decreased by a number is less than 12.

f) 12 multiplied by a number is greater than 12.

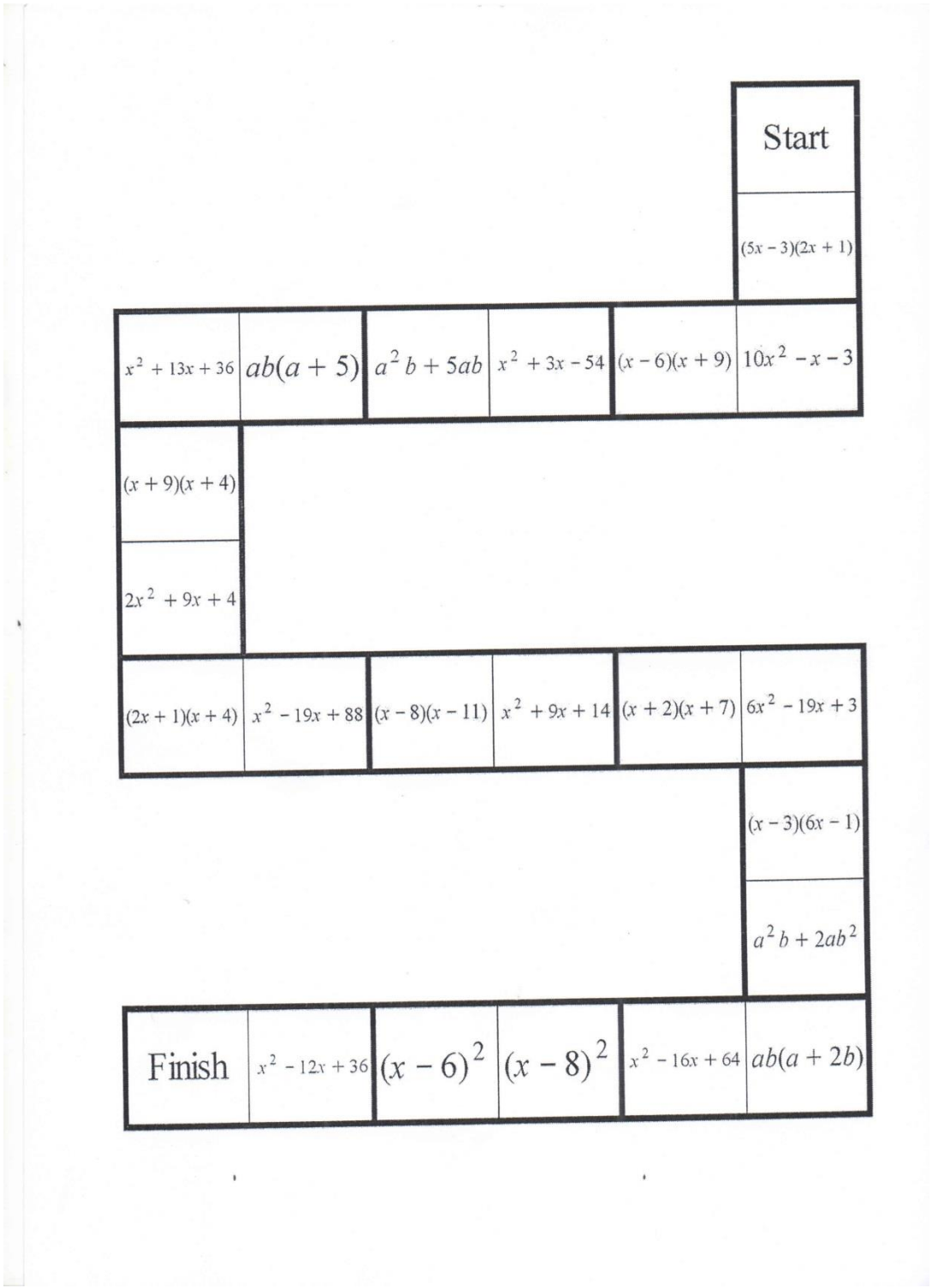
g) The order of multipliers matters.

h) In division the order of numbers matters.

3. *Match the formula and its name:*

1. $a^2 - b^2 = (a-b)(a+b)$	**A** Difference of cubes
2. $a^2 - 2ab + b^2 = (a-b)^2$	**B** Difference of squares
3. $a^2 + 2ab + b^2 = (a+b)^2$	**C** Sum of cubes
4. $a^3 - b^3 = (a-b)(a^2 + ab + b^2)$	**D** Square of difference
5. $a^3 + b^3 = (a+b)(a^2 - ab + b^2)$	**D** Cube of difference
6. $a^3 + 3a^2b + 3ab^2 + b^3 = (a+b)^3$	**E** Cube of sum
7. $a^3 - 3a^2b + 3ab^2 - b^3 = (a-b)^3$	**F** Square of sum

Game "Domino"


Start
(5x − 3)(2x + 1)
x² + 13x + 36
ab(a + 5)
a²b + 5ab
x² + 3x − 54
(x − 6)(x + 9)
10x² − x − 3
(x + 9)(x + 4)
2x² + 9x + 4
(2x + 1)(x + 4)
x² − 19x + 88
(x − 8)(x − 11)
x² + 9x + 14
(x + 2)(x + 7)
6x² − 19x + 3
(x − 3)(6x − 1)
a²b + 2ab²
Finish
x² − 12x + 36
(x − 6)²
(x − 8)²
x² − 16x + 64
ab(a + 2b)