

# Kumon Mathematics Program

## Level H

Simultaneous Linear Equations  
Application of Equations  
Monomials and Polynomials  
Factorization

Student Name: \_\_\_\_\_

Starting Date: \_\_\_\_\_

Completion Date: Your Goal \_\_\_\_\_

Jan      Apr      July      Oct  
Feb      May      Aug      Nov  
Mar      June      Sep      Dec

The goal is based upon your individual abilities. It takes into account the number of pages you are currently able to complete per day and the number of repetitions necessary to ensure mastery of the worksheets.

## Goals of Level H

Level H aims to develop your ability to solve simultaneous linear equations with two to four variables. You will also study operations with monomials and polynomial and the basics of factorization.

## Contents of Level H

Worksheet Number	Section	Worksheet Number	Section
1 - 20	Review of G	111 - 130	Simplifying Monomials and Polynomials
21 - 70	Simultaneous Linear Equations with Two Variables	131 - 140	Multiplication of Polynomials
71 - 90	Simultaneous Linear Equations with Three and Four Variables	141 - 150	Multiplication Using Formulas
91 - 110	Applications of Equations	151 - 200	Factorization



# Features of Level H

**H2 1a** Simultaneous Equations with Two Variables 1 KUMON® H 171

100% 100% 100% 100% 100%

Solve the following simultaneous equations.

(A)  $5x + 2y = 18 \dots \text{①}$   
 $3x + 2y = 10 \dots \text{②}$

(B)  $7x + 2y = 20 \dots \text{①}$   
 $5x + 2y = 16 \dots \text{②}$

(Verification)  
 Substituting  $x = 2$  and  $y = 4$  into ①:  
 $5 \times 2 + 2 \times 4 = 10 + 8 = 18$   
 LHS = 18  
 RHS = 18  
 Substituting  $x = 2$  and  $y = 4$  into ②:  
 $3 \times 2 + 2 \times 4 = 6 + 8 = 14$   
 LHS = 14  
 RHS = 10

The answer is correct if LHS and RHS are equal for both equations ① and ② when verified.

In Level H, you will learn to solve simultaneous linear equations in two to four variables. As with all equations, you can check each answer by seeing if it satisfies the original equations. By doing this, you will have the ability to score 100% on every worksheet.

Examples of the calculation method are given at each stage of progression. Follow the intermediate steps as shown in the example, being careful to write them all down.

You will learn to rewrite (transform) equations in terms of different variables. In Worksheets 91-110, word problems that use equations to get solutions will help you understand how to apply mathematical thinking to practical matters.

**H17 1a** Factorization 3 KUMON® H 171

100% 100% 100% 100% 100%

1. Fill in the blanks.

(1)  $2x^2 + 5x + 2 = (x + 1)(2x + 3)$

(2)  $\square x^2 + 8x + 5 = (x + 1)(2x + 5)$

(3)  $3x^2 + \square x + 2 = (x + 1)(2x + 2)$

(4)  $3x^2 + \square x + 2 = (x + 2)(2x + 1)$

2. Factorize.

(A)  $3x^2 + 5x + 2 = (x + 1)(2x + 2)$

(1)  $3x^2 + 8x + 5 = (x + 1)(3x + 5)$

(2)  $3x^2 + 16x + 5 = (x + 1)(3x + 5)$

(3)  $3x^2 + 10x + 7 = \dots$

After studying equations, you will dive into factorization, one of the cornerstones of algebra. Mastering this focus will give you the skills necessary to easily solve quadratic equations when you advance into Level I.

## Instructor's Comments

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