

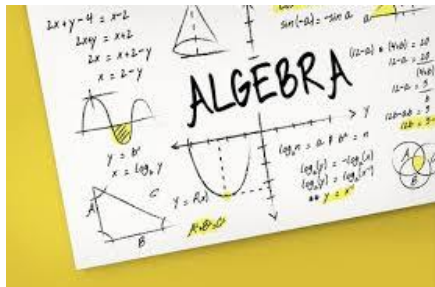
Goals

Unit goals for Mathematical Methods:

- understand the concepts and techniques in algebra, functions, graphs, trigonometric functions and probability
- solve problems using algebra, functions, graphs, trigonometric functions and probability
- apply reasoning skills in the context of algebra, functions, graphs, trigonometric functions and probability
- interpret and evaluate mathematical information and ascertain the reasonableness of solutions to problems
- communicate their arguments and strategies when solving problems.

This week:

- Algebra review



Theoretical Components

Knowledge checklist:

Algebraic expressions

- Expanding
- Simplifying
- Collecting like terms
- Rearranging
- Algebraic Fractions

Online Links

<https://www.mathsisfun.com/algebra/like-terms.html>

<https://www.mathsisfun.com/algebra/expanding.html>

<https://www.mathsisfun.com/algebra/polynomials-multiplying.html>

<https://www.mathsisfun.com/algebra/fractions-algebra.html>

Practical Components

Do the questions on the following page.

Organise your solutions neatly in your exercise book.

Complete the **Mathspace** task set for week 1.

If you need **more practice** on algebraic expressions, work on the exercises in CAMBRIDGE 1A – 1D, posted on Google Classroom.

Investigation

See separate page.

(20 marks – see rubric)

QFO

Quiz/Forum/Other

Remember to check hawkermaths.com for each week's learning brief.

Make sure you have joined Google Classroom and Mathspace. If you have not, see your teacher.

MM1 2021 Week 1 Exercises

Complete every question.

Organise your solutions neatly in your exercise book. Show working.

Perform the indicated operations.

- $(2x^2 - 6x + 11) + (-3x^2 + 7x - 2)$
- $(-4y^2 - 3y + 8) - (2y^2 - 6y - 2)$
- $-6(2q^2 + 4q - 3) + 4(-q^2 + 7q - 3)$
- $2(3r^2 + 4r + 2) - 3(-r^2 + 4r - 5)$
- $(0.613x^2 - 4.215x + 0.892) - 0.47(2x^2 - 3x + 5)$
- $0.5(5r^2 + 3.2r - 6) - (1.7r^2 - 2r - 1.5)$
- $-9m(2m^2 + 3m - 1)$
- $6x(-2x^3 + 5x + 6)$
- $(3t - 2y)(3t + 5y)$
- $(9k + q)(2k - q)$
- $(2 - 3x)(2 + 3x)$
- $(6m + 5)(6m - 5)$
- $\left(\frac{2}{5}y + \frac{1}{8}z\right)\left(\frac{3}{5}y + \frac{1}{2}z\right)$
- $\left(\frac{3}{4}r - \frac{2}{3}s\right)\left(\frac{5}{4}r + \frac{1}{3}s\right)$
- $(3p - 1)(9p^2 + 3p + 1)$
- $(3p + 2)(5p^2 + p - 4)$
- $(2m + 1)(4m^2 - 2m + 1)$
- $(k + 2)(12k^3 - 3k^2 + k + 1)$
- $(x + y + z)(3x - 2y - z)$
- $(r + 2s - 3t)(2r - 2s + t)$
- $(x + 1)(x + 2)(x + 3)$
- $(x - 1)(x + 2)(x - 3)$
- $(x + 2)^2$
- $(2a - 4b)^2$
- $(x - 2y)^3$
- $(3x + y)^3$

MM1 2021 Week 1 Investigation

Juan's age is a prime number. Amina's age has 8 factors and she is one year older than Juan.

Q1. Of the following numbers, which could be the sum of their ages?
Show your working.

- A) 27
- B) 39
- C) 75
- D) 87
- E) 107

Hints:

- Write each of the multiple choice answers as a sum of two consecutive numbers.
- Is the smaller number prime? How many factors does the larger number have?

Q2. What is the youngest age that Juan could be?

Marking Rubric

Name: _____

CRITERIA	EXPECTATIONS	POSS	MULT	GIVEN	TOTAL
Practical	Student completes practical work, including exercises and Mathspace task, of the brief to an acceptable standard set by the teacher.	2	3		/6
Investigation Task	Student completes the investigation task of the brief to an acceptable standard set by the teacher.	2	2		/4
Reasoning and Communications	Student responses are accurate and appropriate in presentation of mathematical ideas, with clear and logical working out shown.	4	-		/4
Concepts and Techniques	Student submitted work selects and applies appropriate mathematical techniques to solve practical problems and demonstrates proficiency in the use of mathematical facts, techniques and formulae.	4	-		/4
	Submission Guidelines				
Timeliness	Student submits the exercises, Mathspace task (if applicable) and investigation by the set deadline. See scoring guidelines for specific details.	2	-		/2
				FINAL	/20

Student Reflection:

How did you go with this week's work?

What did you learn?

What did you find easy?

What do you need to work on?

Mathspace task score: