



Task Number	1	Task Name	Algebra and Equations Summary
Course	5.2 Mathematics	Faculty	Mathematics
Teacher	Mrs Tyson Mr Prince Mr Broadley	Head Teacher	Ms Humphrys
Issue date	29/2/24	Due date	14/3/24 Period 2
Focus (Topic)	Algebraic Techniques and Equations	Task Weighting	25%

Outcomes

MA5.2-1WM selects appropriate notations and conventions to communicate mathematical ideas and solutions.

MA5.2-3WM constructs arguments to prove and justify results.

MA5.2-6NA Simplifies algebraic fractions and expands and factorises quadratic expressions.

MA5.2-8NA Solves linear and simple quadratic equations, linear inequalities and linear simultaneous equations, using analytical and graphical techniques.

Task description

You will be completing a summary sheet on the topics Algebraic Techniques and Equations. The three sections you will be required to complete include:

- A summary of the concept
- Completing questions with full mathematical working
- Creating another question on the concept and solving with full mathematical working

The task must be completed as a hardcopy.

Marking Guidelines

Attached is a marking rubric for the task.

Year 10 5.2 – Assessment 1 Algebraic Techniques and Equations Summary

Name:

Teacher:

	Concept	Summary	Question	Create your own question and solve
Algebraic Techniques				
1	Distribution law for expanding brackets	The distributive property states that $a(b + c) = ab + ac$ therefore the multiplication applies to all terms in the brackets.	<i>Expand:</i> $3ab(a + b)$	

2	Expanding Binomials		<p>Expand:</p> $(x + 2)(2x - 3)$	
3	Multiplying algebraic fractions		<p>Simplify: $\frac{2x^2}{w} \times \frac{b}{2}$</p>	

4	Dividing algebraic fractions		Simplify: $\frac{x}{3} \div \frac{x}{2}$	
5	Adding algebraic fractions (Different denominators)		Simplify: $\frac{x}{3} + \frac{x}{2}$	

6	Subtracting algebraic fractions (Different denominators)		Simplify: $\frac{x^2}{4} - \frac{x}{3}$	
7	Factorisation (Common factor)		Factorise: $6x^2 + 18x$	

Equations

8	Solving linear equations with brackets	<i>Solve:</i> $3(x + 2) = 18$	
9	Solving linear equations with algebraic fractions	<i>Solve:</i> $\frac{x-2}{3} + 10 = 20$	

10	Solving quadratic equations		Solve: $2x^2 = 32$	
11	Solving quadratic equation with factorisation		Factorise and then solve: $x^2 + 6x + 8 = 0$	

12	Solving equations with substitution		<p>If $a = 2$, $b = 3$, solve for c:</p> $\frac{2c}{a} + b = 10$	
13	Solving linear inequalities on a number line		<p>Solve: $2(a + 4) \geq 24$</p>	

Outcome	Limited	Basic	Sound	High	Outstanding
<p>MA5.2-1WM selects appropriate notations and conventions to communicate mathematical ideas and solutions. (SUMMARIES)</p>	<p>Has completed 3 or less summary sections. OR summaries are incorrect and unrelated to the topic.</p>	<p>Has completed 6 or less summary sections. OR summaries have errors. OR summaries do not summarise concepts.</p>	<p>Summary sections are concise and explain the concept. BUT have minimal use of mathematical language and keywords.</p>	<p>Summary sections explain concepts concisely using correct mathematical language. BUT contain some minimal errors.</p>	<p>Summary sections explain concepts concisely using correct mathematical language.</p>
<p>MA5.2-3WM constructs arguments to prove and justify results. (CREATED QUESTIONS)</p>	<p>Has developed 3 or less question sections.</p>	<p>Has completed 6 or less question sections. OR questions contain substantial errors in working.</p>	<p>Has developed question sections but are very similar questions to ones provided. Questions developed are easy to solve and require minimal working.</p>	<p>Question sections developed require full mathematical working to solve and are related directly to the concept. BUT contains minimal errors in working.</p>	<p>Question sections developed require full mathematical working to solve and are related directly to the concept.</p>
<p>MA5.2-6NA Simplifies algebraic fractions and expands and factorises quadratic expressions. (QUESTIONS 1-7)</p>	<p>Has attempted 2 or less questions between questions 1-7.</p>	<p>Has attempted less than 4 questions between questions 1-7. OR has attempted all questions but has many mistakes or does not show any mathematical working.</p>	<p>Completes 5 or more questions 1-7 showing some mathematical working with some errors but has not written answers in simplest form.</p>	<p>Completes all of questions 1-7 showing full mathematical working with minimal errors. BUT some answers could be simplified.</p>	<p>Completes all of questions 1-7 showing full mathematical working with no errors and answers written in simplest form.</p>
<p>MA5.2-8NA Solves linear and simple quadratic equations, linear inequalities and linear simultaneous equations, using analytical and graphical techniques. (QUESTIONS 8-13)</p>	<p>Has attempted 2 or less questions between questions 8-13.</p>	<p>Has attempted 3 or less questions between questions 8-13. OR has attempted all questions but has many mistakes or does not show any mathematical working.</p>	<p>Completes 4 or more questions 8-13 showing some mathematical working with some errors but has not written answers in simplest form.</p>	<p>Completes all of questions 8-13 showing full mathematical working with minimal errors. BUT some answers could be simplified.</p>	<p>Completes all of questions 8-13 showing full mathematical working with no errors and answers written in simplest form.</p>