Comparison of AC v8.4 to v9.0

ACiQ v9.0

Year 7: Mathematics

Key	same/refined	removed	new	moved

Note:

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- v8.4 content descriptions may have been reordered to align with v9.0 content descriptions.

Version 8.4		Version 9.0	
Achievement standard		**Achievement standard**	
By the end of Year 7, students solve problems involving the comparison, addition and subtraction of integers. They make the connections between whole numbers and index notation and the relationship between perfect squares and square roots. They solve problems involving percentages and all four operations with fractions and decimals. They compare the cost of items to make financial decisions. Students represent numbers using variables. They connect the laws and properties for numbers to algebra. They interpret simple linear representations and model authentic information. Students describe different views of three-dimensional objects. They represent transformations in the Cartesian plane. They solve simple numerical problems involving angles formed by a transversal crossing two lines. Students identify issues involving the collection of continuous data. They describe the relationship between the median and mean in data displays. Students use fractions, decimals and percentages, and their equivalences. They express one quantity as a fraction or percentage of another. Students solve simple linear equations and evaluate algebraic expressions after numerical substitution. They assign ordered pairs to given points on the Cartesian plane. Students use formulas for the area and perimeter of rectangles and calculate volumes of rectangular prisms. Students classify triangles and quadrilaterals. They name the types of angles formed by a transversal crossing parallel line. Students determine the sample space for simple experiments with equally likely outcomes and assign probabilities to those outcomes. They calculate mean, mode, median and range for data sets. They construct stem-and-leaf plots and dot-plots.		By the end of Year 7, students represent natural numbers in expanded form and as products of prime factors, using exponent notation. They solve problems involving squares of numbers and square roots of perfect square numbers. Students solve problems involving addition and subtraction of integers. They use all 4 operations in calculations involving positive fractions and decimals, choosing efficient calculation strategies. Students choose between equivalent representations of rational numbers and percentages to assist in calculations. They use mathematical modelling to solve practical problems involving rational numbers, percentages and ratios, in financial and other applied contexts, justifying choices of representation. Students use algebraic expressions to represent situations, describe the relationships between variables from authentic data and substitute values into formulas to determine unknown values. They solve linear equations with natural number solutions. Students create tables of values related to algebraic expressions and formulas, and describe the effect of variation. Students apply knowledge of angle relationships and the sum of angles in a triangle to solve problems, giving reasons. Students use formulas for the areas of triangles and parallelograms and the volumes of rectangular and triangular prisms to solve problems. They describe the relationships between the radius, diameter and circumference of a circle. Students classify polygons according to their features and create an algorithm designed to sort and classify shapes. They represent objects two-dimensionally in different ways, describing the usefulness of these representations. Students use coordinates to describe transformations of points in the plane. Students plan and conduct statistical investigations involving discrete and continuous numerical data, using appropriate displays. Students interpret data in terms of the shape of distribution and summary statistics, identifying possible outliers. They decide which measure of central tendency is most suitable and explain their reasoning. Students list sample spaces for single step experiments, assign probabilities to outcomes and predict relative frequencies for related events. They conduct repeated single-step chance experiments and run simulations using digital tools, giving reasons for differences between predicted and observed results.	
Strands	**Content descriptions**	**Content descriptions**	**Strands**
Number	investigate and use square roots of perfect square numbers ACMNA150	describe the relationship between perfect square numbers and square roots, and use squares of numbers and square roots of perfect square numbers to solve problems AC9M7N01	Number
	investigate index notation and represent whole numbers as products of powers of prime numbers ACMNA149	represent natural numbers as products of powers of prime numbers using exponent notation AC9M7N02	
		represent natural numbers in expanded notation using place value and powers of 10 AC9M7N03	
	compare fractions using equivalence. Locate and represent positive and negative fractions and mixed numbers on a number line ACMNA152	find equivalent representations of rational numbers and represent rational numbers on a number line AC9M7N04	
	connect fractions, decimals and percentages and carry out simple conversions ACMNA157		
	round decimals to a specified number of decimal places ACMNA156	round decimals to a given accuracy appropriate to the context and use appropriate rounding and estimation to check the reasonableness of solutions AC9M7N05	
	solve problems involving addition and subtraction of fractions, including those with unrelated denominators ACMNA153	use the 4 operations with positive rational numbers including fractions, decimals and percentages to solve problems using efficient calculation strategies AC9M7N06	
	multiply and divide fractions and decimals using efficient written strategies and digital technologies ACMNA154		
	find percentages of quantities and express one quantity as a percentage of another, with and without digital technologies ACMNA158 **Moved to Year 6**		
	compare, order, add and subtract integers ACMNA280	compare, order and solve problems involving addition and subtraction of integers AC9M7N07	
	express one quantity as a fraction of another, with and without the use of digital technologies ACMNA155	use mathematical modelling to solve practical problems, involving rational numbers and percentages, including financial contexts; formulate problems, choosing representations and efficient calculation strategies, using digital tools as appropriate; interpret and communicate solutions in terms of the situation, justifying choices made about the representation AC9M7N09	
	recognise and solve problems involving simple ratios ACMNA173		
		recognise, represent and solve problems involving ratios AC9M7N08	
	investigate and calculate ‘best buys’, with and without digital technologies ACMNA174		

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	apply the associative, commutative and distributive laws to aid mental and written computation ACMNA151 **Moved to Year 6 and to Algebra**		
Algebra	introduce the concept of variables as a way of representing numbers using letters ACMNA175	recognise and use variables to represent everyday formulas algebraically and substitute values into formulas to determine an unknown AC9M7A01 **Moved from Year 10**	Algebra
	introduce the concept of variables as a way of representing numbers using letters ACMNA175	formulate algebraic expressions using constants, variables, operations and brackets AC9M7A02	
	create algebraic expressions and evaluate them by substituting a given value for each variable ACMNA176		
	extend and apply the laws and properties of arithmetic to algebraic terms and expressions ACMNA177		
	apply the associative, commutative and distributive laws to aid mental and written computation ACMNA151 **Moved from Number**		
	solve simple linear equations ACMNA179	solve one-variable linear equations with natural number solutions; verify the solution by substitution AC9M7A03	
	investigate, interpret and analyse graphs from authentic data ACMNA180	describe relationships between variables represented in graphs of functions from authentic data AC9M7A04	
	create algebraic expressions and evaluate them by substituting a given value for each variable ACMNA176	generate tables of values from visually growing patterns or the rule of a function; describe and plot these relationships on the Cartesian plane AC9M7A05	
	extend and apply the laws and properties of arithmetic to algebraic terms and expressions ACMNA177		
	given coordinates, plot points on the Cartesian plane, and find coordinates for a given point ACMNA178 **Moved to Year 6**		
		manipulate formulas involving several variables using digital tools, and describe the effect of systematic variation in the values of the variables AC9M7A06	
Measurement	establish the formulas for areas of rectangles, triangles and parallelograms, and use these in problem-solving ACMMG159 **Moved to Year 6**	solve problems involving the area of triangles and parallelograms using established formulas and appropriate units AC9M7M01	Measurement
	calculate volumes of rectangular prisms ACMMG160	solve problems involving the volume of right prisms including rectangular and triangular prisms, using established formulas and appropriate units AC9M7M02 **Moved from Year 8**	
		describe the relationship between π and the features of circles including the circumference, radius and diameter AC9M7M03 **Moved from Year 8**	
	identify corresponding, alternate and co-interior angles when two straight lines are crossed by a transversal ACMMG163	identify corresponding, alternate and co interior relationships between angles formed when parallel lines are crossed by a transversal; use them to solve problems and explain reasons AC9M7M04	
	investigate conditions for two lines to be parallel and solve simple numerical problems using reasoning ACMMG164		
	demonstrate that the angle sum of a triangle is 180° and use this to find the angle sum of a quadrilateral ACMMG166	demonstrate that the interior angle sum of a triangle in the plane is 180° and apply this to determine the interior angle sum of other shapes and the size of unknown angles AC9M7M05	
		use mathematical modelling to solve practical problems involving ratios; formulate problems, interpret and communicate solutions in terms of the situation, justifying choices made about the representation AC9M7M06	
Geometry	draw different views of prisms and solids formed from combinations of prisms ACMMG161	represent objects in 2 dimensions; discuss and reason about the advantages and disadvantages of different representations AC9M7SP01	Space
	classify triangles according to their side and angle properties and describe quadrilaterals ACMMG165	classify triangles, quadrilaterals and other polygons according to their side and angle properties; identify and reason about relationships AC9M7SP02 **Moved from Year 8**	
	describe translations, reflections in an axis and rotations of multiples of 90° on the Cartesian plane using coordinates. Identify line and rotational symmetries ACMMG181	describe transformations of a set of points using coordinates in the Cartesian plane, translations and reflections on an axis, and rotations about a given point AC9M7SP03	
		design and create algorithms involving a sequence of steps and decisions that will sort and classify sets of shapes according to their attributes, and describe how the algorithms work AC9M7SP04	
Statistics	calculate mean, median, mode and range for sets of data. Interpret these statistics in the context of data ACMSP171 **Moved to Year 6**	acquire data sets for discrete and continuous numerical variables and calculate the range, median, mean and mode; make and justify decisions about which measures of central tendency provide useful insights into the nature of the distribution of data AC9M7ST01	Statistics
	describe and interpret data displays using median, mean and range ACMSP172		
	construct and compare a range of data displays including stem-and-leaf plots and dot plots ACMSP170	create different types of numerical data displays including stem and leaf plots using software where appropriate; describe and compare the distribution of data, commenting on the shape, centre and spread	
	describe and interpret data displays using median, mean and range ACMSP172		

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	calculate mean, median, mode and range for sets of data. Interpret these statistics in the context of data ACMSP171 **Moved to Year 6**	including outliers and determining the range, median, mean and mode AC9M7ST02 **Moved from Year 8**	
		plan and conduct statistical investigations involving data for discrete and continuous numerical variables; analyse and interpret distributions of data and report findings in terms of shape and summary statistics AC9M7ST03	
Probability	construct sample spaces for single-step experiments with equally likely outcomes ACMSP167	identify the sample space for single-stage events; assign probabilities to the outcomes of these events and predict relative frequencies for related events AC9M7P01	Probability
	assign probabilities to the outcomes of events and determine probabilities for events ACMSP168		
		conduct repeated chance experiments and run simulations with a large number of trials using digital tools; compare predictions about outcomes with observed results, explaining the differences AC9M7P02	

Considerations for planning for the first year of implementation

In the initial year of implementing the Australian Curriculum: Mathematics v9.0, teachers need to consider the implications of content changes as they transition from v8.4.

The table below:

- identifies changes between v8.4 and v9.0 that may influence the sequence of students' learning
- outlines considerations for planning teaching and learning programs for the first year of implementation.

Year 6 content in v8.4	Year 7 content in v9.0	Considerations
investigate and calculate percentage discounts of 10%, 25% and 50% on sale items, with and without digital technologies ACMNA132	use mathematical modelling to solve practical problems, involving rational numbers and percentages, including financial contexts; formulate problems, choosing representations and efficient calculation strategies, using digital tools as appropriate; interpret and communicate solutions in terms of the situation, justifying choices made about the representation AC9M7N09	In v9.0 financial contexts need to be provided for mathematical modelling. Students need to understand the language, processes, concepts and relationships relevant to that context. For example, finding percentage profits and loss requires an understanding of language and concepts such percentage, profit, loss, cost price, selling price and gain.
solve problems involving the comparison of lengths and areas using appropriate units ACMMG137	solve problems involving the area of triangles and parallelograms using established formulas and appropriate units AC9M7M01	The following Year 7 v8.4 content description has been moved to Year 6 v9.0. Establish the formulas for areas of rectangles, triangles and parallelograms, and use these in problem-solving ACMMG159 In the first year of implementation, students will not have engaged in the required prior knowledge of this concept. Consider including the area of rectangle formula in teaching and learning sequences.