

# Ultimate Maths Invaders Curriculum & Content

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## Curriculum References

### Australia

### National Benchmarks – Number Sense

Benchmark	UMI Levels	Number Sense Outcomes
<b>Year 3</b>	<b>1-3</b>	<ul style="list-style-type: none"> <li>• Read and write whole numbers up to 999</li> <li>• Demonstrate their knowledge of place value</li> <li>• Recognise and show one-half of a group of objects</li> <li>• Count forwards to and backwards from 99</li> <li>• Identify and continue simple patterns involving numbers up to 99 (e.g. counting patterns)</li> <li>• Remember or work out basic addition facts to <math>10+10</math>, the matching subtraction facts, and extensions of those facts.</li> <li>• Add and subtract whole numbers to 99 by using mental methods</li> </ul>
<b>Year 5</b>	<b>4-5</b>	<ul style="list-style-type: none"> <li>• Read, write and use whole numbers up to 9999</li> <li>• Demonstrate knowledge of place value and recognise different forms of the same number</li> <li>• Show understanding of simple fractions</li> <li>• Show understanding and use of decimals in familiar contexts</li> <li>• Count forwards to and backwards from 1000 (by 10s and 100s)</li> <li>• Identify simple patterns involving numbers (eg extensions of addition or subtraction facts)</li> <li>• Work out the answers to addition and subtraction problems that involve 3-digit whole numbers</li> <li>• Know or work out multiplication facts to <math>10 \times 10</math> and use these to work out extensions of those facts</li> <li>• Perform simple multiplications and divisions with whole numbers such as <math>34 \times 6</math> and <math>36 \div 3</math> using mental methods</li> </ul>
<b>Year 7</b>	<b>6-7</b>	<ul style="list-style-type: none"> <li>• Read, write, compare and order whole numbers to seven digits and numbers with decimal fractions to 2 decimal places</li> <li>• Read, name, write and compare simple common fractions and recognise simple equivalent fractions, decimals and percentages written in different forms</li> <li>• Calculate with addition, subtraction, multiplication and division, using a variety of strategies</li> </ul>

## New South Wales / ACT – Number Strand

Substrand	Early Stage 1	Stage 1	Stage 2	Stage 3	Stage 4
	UMI Levels 1-2	UMI Levels 3-4	UMI Levels 5-6	UMI Levels 7-8	UMI Levels 9-10
<p><b>Whole Numbers</b> Students develop a sense of the relative size of whole numbers and the role of place value in their representation.</p>	<p><b>NES1.1</b> Counts to 30, and orders, reads and represents numbers in the range 0 – 20.</p>	<p><b>NS1.1</b> Counts, orders, reads and represents 2- and 3-digit numbers.</p>	<p><b>NS2.1</b> Counts, orders, reads and record numbers up to 4 digits.</p>	<p><b>NS3.1</b> Orders, reads and writes numbers of any size.</p>	
<p><b>Addition &amp; Subtraction</b> Students develop facility with number facts and computation with progressively larger numbers in addition and subtraction and an appreciation of the relationship between those facts.</p>	<p><b>NES1.2</b> Combines, separates and compares collections of objects.</p>	<p><b>NS1.2</b> Uses a range of mental strategies for addition and subtraction involving 1- and 2-digit numbers.</p>	<p><b>NS2.2</b> Uses mental strategies for addition and subtraction involving 2, 3- and 4-digit numbers.</p>	<p><b>NS3.2</b> Applies appropriate strategies for addition and subtraction with counting numbers of any size.</p>	
<p><b>Multiplication &amp; Division</b> Students develop facility with number facts and computation with progressively larger numbers in multiplication and division and an appreciation of the relationship between</p>	<p><b>NES1.3</b> Groups, shares and counts collections of objects using everyday language.</p>	<p><b>NS1.2</b> Uses a range of mental strategies for multiplication and division.</p>	<p><b>NS2.2</b> Uses mental strategies for multiplication and division.</p>	<p><b>NS3.2</b> Selects and applies appropriate strategies for multiplication and division.</p>	

those facts.					
<b>Fractions, Decimals &amp; Percentages</b> Students develop an understanding of the parts of a whole, and the relationships between the different representations of fractions. Students operate with fractions, decimals and percentages.		<b>NS1.3</b> Describes halves and quarters of collections.	<b>NS2.3</b> Compares and represents commonly used fractions and decimals, adds and subtracts decimals to 2 decimal places, and interprets everyday percentages.	<b>NS3.3</b> Compares and calculates with decimals, simple fractions and simple percentages.	<b>NS4.3</b> Operates with fractions, decimals and percentages.
<b>Operations with Whole Numbers</b> Students recognise the properties of special groups of whole numbers and apply a range of strategies to aid computation.					<b>NS4.1</b> Find squares, related square roots, cubes, related cube roots. Use index notation for positive integral indices.
<b>Integers</b> Students compare, order and calculate with integers.					<b>NS4.2</b> Perform operations with directed numbers.

## Northern Territory – Number Strand

Strand Statement	Level 1	Level 2	Level 3	Level 4	Level 5	Level 6
	UMI Level 1	UMI Levels 1 - 3	UMI Levels 5-6	UMI Levels 7-8	UMI Levels 8-9	UMI Levels 9-10
<p><b>The Number strand focuses on number concepts and notation, number patterns and number skills. In addition, the strand is about the development of number and computation in various cultures, the significance of the idea of number and the significance of the development of number notations. In this strand, students also learn successively more efficient computing strategies.</b></p>	<p>Students count and use number to order things. They use a variety of strategies to mentally solve questions.</p>	<p>Students count numbers with at least 2 digits and estimate collections up to a size of 20. They understand everyday fractions of 1. They understand addition and subtraction. They subtract 2-digit numbers using a variety of methods. They have a basic understanding of multiplication and division.</p>	<p>Students work with large whole numbers and extended number patterns. They apply fractional and decimal quantities. They remember and apply mentally basic addition facts up to <math>10 + 10</math>. They remember many basic multiplication facts and can use mental methods. They link multiplication and division.</p>	<p>Students use common fractions and order decimals with equal numbers of places. They understand multiplication. They recall and apply all four operations with whole numbers mentally. They add and subtract numbers with equal decimal places and multiply and divide whole numbers and decimals by single digit numbers.</p>	<p>Students move easily between various ways of representing numbers and quantities. They order decimals with unequal numbers of decimal places. They understand multiplication and division. They use a range of mental strategies for operations on whole numbers and common and decimal fractions.</p>	<p>Students interpret whole powers, roots and scientific notation. They use negative numbers and ratios to describe the relationships between quantities. They apply number patterns and relationships between number. They use common fractions and percentages; they know common equivalence and can use these to calculate percentages mentally.</p>

## Queensland – Number Strand

<b>Foundation Level</b>	<b>Level 1</b>	<b>Level 2</b>	<b>Level 3</b>	<b>Level 4</b>	<b>Level 5</b>
UMI Levels 1-2 (with controlled speed and display)	UMI Levels 1-3	UMI Levels 3-4	UMI Levels 5+	UMI Levels 7-10	UMI Levels 7-10
Level Statement <i>Students are developing a notion of counting and an awareness of number.</i>	Level Statement <i>Students are developing a sense of number by knowing number names and counting in sequence. They recognise, compare, order and represent small whole numbers. Students identify and distinguish between situations that require them to add or subtract, to share equally or to create equal groups.</i>	Level Statement <i>Students demonstrate their developing number sense by comparing, ordering and representing whole numbers to 999 and understanding that the value of a digit in a number determines its place value. They understand that a whole can be made up of equal parts. Students are beginning to recall or work out some addition, subtraction and multiplication number facts.</i>	Level Statement <i>Students compare, order and represent whole numbers to 9999, decimal fractions and common fractions and recognise the value of each digit. Students recall or work out all addition, subtraction and multiplication number facts and some division facts. They use a range of computation methods, including mental, to solve problems that involve whole numbers and decimal fractions in context.</i>	Level Statement <i>Students compare and order any whole numbers and decimal fractions. They identify fractions expressed in different ways and make connections between common fractions, decimal fractions and percentages. Students recall all addition, subtraction, multiplication and division number facts.</i>	Level Statement <i>Students compare and order positive and negative integers and explain and record index notation.</i>
<b>Number Concepts NF1</b> Students rote count to a specified number	<b>Number Concepts N1.1</b> Students identify, compare and order small whole numbers.	<b>Number Concepts N2.1</b> Students compare and order whole numbers to 999 and identify simple fractions of objects and collections.	<b>Number Concepts N3.1</b> Students compare, order and represent whole numbers to 9999 and common and decimal fractions.	<b>Number Concepts N4.1</b> Students compare and order whole numbers and common and decimal fractions of any size, and make	<b>Number Concepts N5.1</b> Students compare and order integers, and use and interpret index notation.

				connections between key percentages and fractions.	
<b>Addition and Subtraction NF2</b> Students show an awareness of <i>more</i> , <i>less</i> and <i>same</i> in life situations.	<b>Addition and Subtraction N1.2</b> Students identify and solve addition and subtraction problems involving small whole numbers.	<b>Addition and Subtraction N2.2</b> Students identify and solve addition and subtraction problems involving whole numbers, using mental strategies and known number facts.	<b>Addition and Subtraction N3.2</b> Students identify and solve addition and subtraction problems involving whole numbers and decimal fractions using mental strategies and known number facts.	<b>Addition and Subtraction N4.2</b> Students identify and solve addition and subtraction problems involving any whole numbers and decimal fractions, using mental strategies and known number facts.	Addition and Subtraction N5.2 Students identify and solve addition and subtraction problems involving positive rational numbers, using mental strategies and known number facts.
<b>Multiplication and Division NF3</b> Students share a quantity of everyday objects among their peers.	<b>Multiplication and Division N1.3</b> Students identify and describe equal groupings and equal sharing.	<b>Multiplication and Division N2.3</b> Students identify and solve multiplication and division problems, using mental strategies and known number facts.	<b>Multiplication and Division N3.3</b> Students identify and solve multiplication and division problems involving whole numbers and decimal fractions, using mental strategies and known number facts.	<b>Multiplication and Division N4.3</b> Students identify and solve multiplication and division problems involving whole numbers, decimal fractions, common fractions and percentages using mental strategies and known number facts.	Multiplication and Division N5.3 Students identify and solve multiplication and division problems involving positive rational numbers, using mental strategies and known number facts.

## South Australia – Number Strand

Standard	Key Ideas	Outcomes	UMI Levels
<b>Standard 1</b>	Children construct their concepts of counting numbers, simple fractions and the base 10 numbering system using symbols and collections from everyday life.	<p><b>1.6</b> Uses the base 10 number system and fractions to represent numbers.</p> <p><b>1.7</b> Uses a variety of counting strategies and the four number operations to estimate and quantify collections of objects and units of comparison.</p>	1 - 2
<b>Standard 2</b>	Students develop their number sense through exploring and analysing how numbers are used and represented in their daily activities. They continue to refine their understanding of relationships between numbers, place value and proportion.	<p><b>2.6</b> Represents and compares rational numbers in a variety of ways, describing relationships among them.</p> <p><b>2.7</b> Applies operations with whole numbers.</p>	3 - 5
<b>Standard 3</b>	Students understand the meaning of operations and how they relate to each other.	<p><b>3.7</b> Describes, represents and analyses operations with rational numbers and relationships between them.</p> <p><b>3.8</b> Uses a variety of estimating and calculating strategies with whole numbers, including memorising multiplication and division facts, fractions and decimals.</p>	4 +

<b>Standard 4</b>	Students use computational tools and strategies.	<p><b>4.6</b> Represents and analyses relationships amongst integers and rational numbers.</p> <p><b>4.7</b> Communicates understanding of the meaning of operations with integers and rational numbers and how they relate to each other.</p> <p><b>4.8</b> Applies appropriate computational tools and strategies to situations involving integers and rational numbers.</p>	<b>7 -10</b>
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## Tasmania - Essential Learnings – Being Numerate

**KEY ELEMENT OUTCOME:** Understands and has the confidence and disposition to use the mathematical concepts and skills required to meet the demands of life.

### Performance Guidelines

*Being numerate means using mathematical concepts and skills involving number... It includes having the confidence and disposition to use mathematical understandings whenever appropriate.*

*Students who are numerate:*

*Understand how to think, act and communicate mathematically by: ...applying mathematics in a variety of contexts [and] ...connecting new understandings to old.*

*Understand number by: counting, ... calculating; and relating whole or part quantities.*

<b>STANDARD 1</b>	<b>STANDARD 2</b>	<b>STANDARD 3</b>	<b>STANDARD 4</b>	<b>STANDARD 5</b>
<b>UMI Levels</b>	<b>UMI Levels</b>	<b>UMI Levels</b>	<b>UMI Levels</b>	<b>UMI Levels</b>
<p>Understands that mathematical language and ideas can be used to describe situations encountered through play. Students demonstrate aspects of this learning when they:</p> <ul style="list-style-type: none"> <li>Count collections.</li> </ul>	<p>Understands how to purposefully use informal ways of thinking mathematically in familiar situations.</p> <p>Students demonstrate aspects of this learning when they:</p> <ul style="list-style-type: none"> <li>Use number concepts and counting strategies (e.g. count on, count back) to solve number problems.</li> </ul>	<p>Understands how to explore [and] refine ...more effective ways of thinking and acting mathematically in familiar situations. Students demonstrate aspects of this learning when they:</p> <ul style="list-style-type: none"> <li>Recognise patterns in number sequences and explore relationships.</li> <li>Commit some number relations to memory, based on understanding of mental strategies, and use a range of mental ...processes for calculating, as well as ideas of place value.</li> </ul>	<p>Understands how to consistently select ... effective mathematical strategies and choose the most effective strategy for solving problems. Students demonstrate aspects of this learning when they:</p> <ul style="list-style-type: none"> <li>Recall relevant number relations and choose personally effective techniques for calculations.</li> </ul>	<p>Understands how and when to use mathematical ideas effectively and critically when interpreting information and solving problems. Students demonstrate aspects of this learning when they:</p> <ul style="list-style-type: none"> <li>Use personally effective techniques for estimating and dealing with whole numbers, fractions, decimals, percentages, ratios and rates.</li> </ul>

## Western Australia – Number Strand

	UMI Level	Understand Numbers		Understand Operations	Calculate
<b>Level 1</b>	Level 1	Reads and writes small whole numbers, using them to say how many things there are.			
<b>Level 2</b>	Level 2-3	(a) Reads, writes and counts with whole numbers to beyond 100, using them to compare collection sizes and describe order.	(b) Understands the meaning of <i>half</i> and <i>quarter</i> .	Understands the meaning and connections between counting, number partitions, addition and subtraction and uses this understanding to represent situations involving all four basic operations.	Counts, partitions and regroups in order to add and subtract 1- and 2-digit numbers, drawing mostly on mental strategies for 1-digit numbers.
<b>Level 3</b>	Level 3	(a) Reads, writes, counts with and compares whole numbers into the thousands.	(b) Reads, writes and understands the meaning of unit fractions, flexibly partitioning quantities to make equal parts.	Understands the meaning, use and connections between the four operations on whole numbers, and uses this understanding to choose appropriate operations.	Adds and subtracts whole numbers and multiplies and divides by 1-digit whole numbers, drawing mostly on mental strategies for doubling, halving, adding to 100, and additions and subtractions readily derived from basic facts.
<b>Level 4</b>	Level 4-5	(a) Reads, writes, counts with and compares whole numbers into the millions and decimals (equal number of places).	(b) Reads, writes and understands the meaning of fractions and for readily visualised fractions, shows equivalence between them.	Understands the meaning, use and connections between the four operations on whole and decimal numbers, and uses this understanding to choose appropriate operations (whole multipliers and divisors).	Calculates with whole numbers (at least multipliers and divisors to 10), drawing mostly on mental strategies to add and subtract 2-digit numbers and for multiplications and divisions related to basic facts.

<b>Level 5</b>	<b>Level 6-7</b>	(a) Reads, writes and understands the meaning, order and relative magnitude of whole and decimal numbers and negative integers.	b) Reads, writes and understands the meaning, order and relative magnitude of any fractions, straightforward ratios and percentages, and knows the more common equivalences between them.	Understands the meaning, use and connections between the four operations on whole, decimal and fractional numbers, and uses this understanding to choose appropriate operations, including where fractional multipliers and divisors are required.	Calculates with whole numbers, decimals and fractions (well-known equivalences, whole number multipliers and divisors), drawing mostly on mental strategies for whole numbers and readily visualised fractions.
<b>Level 6</b>	<b>Level 7+</b>	Reads, writes and understands the meaning and relative magnitude of positive and negative rational numbers and numbers expressed with integer powers.			Calculates with positive and negative numbers, decimals, fractions and integer powers, using mostly mental strategies including for frequently used fractions and percentages of amounts.

## New Zealand - Number Strand

	<b>Level 1</b>	<b>Level 2</b>	<b>Level 3</b>	<b>Level 4</b>	<b>Level 5</b>
	UMI Level 1	UMI Levels 1 - 3	UMI Levels 4-7	UMI Levels 7-8	UMI Levels 8+
<b>Exploring number</b>	Form a set of up to 20 objects. Read and write any 2-digit number. Rote count to at least 50.	Read any 3-digit whole number. Understand the meaning of the digits in 2- or 3-digit whole numbers.	Explain the meaning of the digits in any whole number. Explain the meaning of the digits in decimal numbers up to 3 decimal places.	Explain the meaning of negative numbers. Evaluate powers of whole numbers. Find fractions equivalent to one given. Express a decimal as a fraction and vice versa. Express a decimal as a percentage and vice versa. Express quantities as fractions and percentages of a whole.	Express the values of square roots
<b>Exploring computation</b>	Understand addition calculations with a sum of up to 20. Understand subtraction calculations up to 20.	Recall the basic addition and subtraction facts. Mentally perform calculations involving addition and subtraction. Use the multiplication facts.	Recall the basic multiplication facts. Solve problems which require finding reactions of whole number and decimal amounts.	Solve problems involving decimal multiplication and division. Find a given fraction or percentage of a quantity.	Solve problems involving decimals and percentages. Solve problems involving positive and negative numbers. Express one quantity as a percentage of another.

## UK – Numbers and Calculations

	Key Stage 1		Key Stage 2	
	Level 1	Level 2	Level 3	Level 4
	UMI Level 1	UMI Levels 1-2	UMI Levels 2-4	UMI Levels 4-5
	Pupils count, order, add and subtract numbers when solving problems involving up to 10 objects. They read and write the numbers involved.	Pupils count sets of objects reliably, and use mental recall of addition and subtraction facts to 10. They begin to understand the place value of each digit in a number. They choose the appropriate operation when solving addition and subtraction problems. They use the knowledge that subtraction is the inverse of addition. They recognise sequences of numbers, including odd and even numbers.	Pupils show understanding of place value in numbers up to 1000. Pupils use mental recall of addition and subtraction facts to 20 in solving problems related to larger numbers. They add and subtract 2-digit numbers mentally. They use mental recall of the 2,3,4,5 and 10 multiplication tables and derive the associated division facts. They solve whole number problems involving multiplication or division. They use simple fractions that are several parts of a whole and recognise when 2 simple fractions are equivalent.	Pupils use their understanding of place value to multiply and divide whole numbers by 10 or 100. In solving number problems, pupils use a range of mental methods of computation, including mental recall of multiplication facts up to 10x10 and quick derivation of corresponding division facts.

	<b>Key Stage 3</b>			
	<b>Level 5</b>	<b>Level 6</b>	<b>Level 7</b>	<b>Level 8</b>
	<b>UMI Levels 5-6</b>	<b>UMI Levels 6-8</b>	<b>Levels 8-10</b>	<b>Levels 9-10</b>
	<b>Number &amp; Algebra</b>	Pupils use their understanding of place value to multiply and divide whole numbers and decimals by 10, 100 and 1000. They order, add and subtract negative numbers in context. They use all four operations with decimals to 2 places. They calculate fractional or percentage parts of quantities.	Pupils are aware of which number to consider as 100%, or a whole, in problems involving comparisons, and use this to evaluate one number as a fraction or a percentage of another. They use and understand the equivalences between fractions, decimals and percentages.	Pupils understand the effects of multiplying and dividing by numbers between 0 and 1. Pupils solve numerical problems involving multiplication and division with numbers of any size.

## Scotland – Number Levels A – E

Strands	Level A	Level B	Level C	Level D	Level E
	UMI Level 1	UMI Levels 1-3	UMI Levels 3-4	UMI Levels 5-6	UMI Levels 7-8
<b>Range &amp; type of numbers</b>	<b>Work with:</b> whole numbers 0 -20	<b>Work with:</b> whole numbers up to 100 and the up to 1000	<b>Work with:</b> whole numbers up to 10000 thirds, fifths, eighths, tenths and simple equivalence	<b>Work with:</b> whole numbers up to 100000 fractions (all previous plus twentieths, fiftieths, hundredths) and equivalence among these and decimals percentages, decimals to 2 places	<b>Work with:</b> negative numbers all widely-used fractions and equivalence among these and decimals decimals to 3 places
<b>Add &amp; subtract</b>	<b>Add and subtract:</b> mentally for numbers 0 – 10	<b>Add and subtract:</b> mentally for numbers 0 – 20; in some cases beyond 20	<b>Add and subtract:</b> mentally for one digit to or from whole numbers up to 3 digits; beyond in some cases involving multiples of 10 mentally for subtraction by “adding on”	<b>Add and subtract:</b> mentally for 2-digit whole numbers, beyond in some cases involving multiples of 10 or 100	<b>Add and subtract:</b> mentally for 2-digit numbers including decimals
<b>Multiply &amp; divide</b>		<b>Multiply and divide:</b> mentally by 2,3,4,5,10, within the confines of these tables without a calculator for 2-digit numbers multiplied by 2,3,4,5,10	<b>Multiply and divide:</b> mentally within the confines of all tables to 10 mentally for any 2- or 3-digit whole number by 10 without a calculator for 2-digit whole numbers by any single digit whole number	<b>Multiply and divide:</b> mentally for whole numbers by single digits mentally for 4-digit numbers including decimals by 10 or 100 without a calculator for 4 digits with at most 2 decimal places by a single digit	<b>Multiply and divide:</b> mentally for any whole numbers by a multiple of 10 or 100 mentally for any numbers including decimals by 10, 100, 1000. without a calculator for any pair of numbers with no more than 3 decimal places in the

					answer
<b>Fractions, Percentages &amp; Ratios</b>		Find halves and quarters of quantities involving 1 or 2-digit numbers	Find simple fractions (one-third, one-fifth, one-tenth) of quantities involving 1- or 2-digit numbers	Work with fractions and percentages:- Find simple fractions of quantities involving at most 4 digits	Work with fractions and percentages:- mentally find widely-used fractions and percentages of whole number quantities

### Scotland – Number- Standard Grade

Number Topics	UMI Levels 8-10		
	Foundation Level	General Level	Credit Level
<b>Whole numbers</b>	Addition, subtraction, multiplication, division		
<b>Integers</b>		Addition, subtraction, multiplication of a single-digit integer by a single-digit whole number	Multiplication, division
<b>Decimals</b>	Addition, subtraction, multiplication, division		
<b>Fractions</b>	Unitary fraction of a quantity	Fraction of a quantity; equivalence of simple fractions	Four operators applied to fractions
<b>Percentages</b>	Finding a whole number percentage of a quantity	Finding a percentage of a quantity	
<b>Equivalence of percentages, decimals &amp; fractions</b>		Any commonly used equivalence	
<b>Index notation</b>		$a^n$ , $n \in \mathbb{N}$ , eg find $2^5$	

## Eire (Irish Republic) – Number Strand

Infants Classes		First & Second Classes		Third & Fourth Classes	
Junior Infants	Senior Infants	First Class	Second Class	Third Class	Fourth Class
UMI Level 1		UMI Level 2	UMI Levels 2-3	UMI Levels 3-4	UMI Levels 5-7
<p><b>Counting</b> Count the number of objects in a set 1-10</p> <p><b>Combining</b> Explore the components of number, 1-5 Combine sets of objects, totals to 5 Partitioning Partition sets of objects, 1-5</p> <p><b>Numeration</b> Develop an understanding of the conservation of number, 1-5 Read, write and order numerals, 1-5 identify the empty set and the numeral zero Subitise the number of objects in a set, 1-5</p>	<p><b>Counting</b> Count the number of objects in a set 0-20</p> <p><b>Combining</b> Explore the components of number, 1-10 Combine sets of objects, totals to 10 Partitioning Partition sets of objects, 0-10 Use the symbols + and –</p> <p><b>Numeration</b> Develop an understanding of the conservation of number, 0-10 Read, write and order numerals, 0-10 identify the empty set and the numeral zero</p>	<p><b>Counting and Numeration</b> Count the number of objects in a set Read, write and order numerals, 0-99</p> <p><b>Place Value</b> Explore, identify and record place value 0-99</p> <p><b>Addition</b> Explore, develop and apply the commutative, associative and zero properties of addition Develop and/or recall mental strategies for addition facts within 20 Add numbers with and without renaming within 99 Explore repeated addition and group counting</p> <p><b>Subtraction</b> Develop and/or recall mental strategies for</p>	<p><b>Counting and Numeration</b> Read, write and order numerals 0 –199</p> <p><b>Place Value</b> Explore, identify and record place value 0-199</p> <p><b>Addition</b> Develop and recall mental strategies for addition facts within 20 Add numbers without and with renaming within 99 Explore repeated addition and group counting</p> <p><b>Subtraction</b> Develop and recall mental strategies for subtraction 0-20 Subtract numbers with and without renaming within 99 Use the symbols +, - and =</p> <p><b>Fractions</b></p>	<p><b>Place Value</b> Identify place value in whole numbers 0 –999 Identify place value in decimal numbers to one place of decimals</p> <p><b>Addition &amp; Subtraction</b> Add and subtract, without and with renaming, within 999 Know and recall addition and subtraction facts</p> <p><b>Multiplication</b> Understand and apply the zero, commutative and distributive properties of multiplication Develop and/or recall multiplication facts within 100 Multiply a one-digit or two-digit number by 0-10</p> <p><b>Division</b> Develop and/or recall</p>	<p><b>Place Value</b> Identify place value in whole numbers 0-9999 Identify place value in decimal numbers to 2 places of decimals</p> <p><b>Addition &amp; Subtraction</b> Add and subtract, without and with renaming, within 9999 Know and recall addition and subtraction facts</p> <p><b>Multiplication</b> Understand and apply the zero, commutative and distributive properties of multiplication Develop and recall multiplication facts within 100 Multiply a two-digit or three-digit number by a one or two digit number</p> <p><b>Division</b></p>

		<p>subtraction 0-20 Subtract numbers without renaming within 99 Use the symbols +, - and =</p> <p><b>Fractions</b> Establish and identify half of sets to 20</p>	<p>Identify halves and quarters of sets to 20</p>	<p>division facts within 100 Divide a one-digit or a two-digit number by a one digit number without remainders Fractions Identify fractions and equivalent forms of fractions with denominators 2, 4, 8 and 10. Develop an understanding of the relationship between fractions and division Calculate a unit fraction of a number Decimals Identify tenths and express in decimal form</p>	<p>Develop and/or recall division facts within 100 Divide a three-digit number by a one digit number without remainders Fractions Identify fractions and equivalent forms of fractions with denominators 2, 3, 4, 5, 6, 8, 9, 10 and 12. Decimals Express tenths and hundredths as fractions and decimals Add and subtract whole numbers and decimals up to 2 places Multiply and divide a decimal number up to 2 places by a single-digit whole number</p>
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Fifth Class	Sixth Class
<p align="center"><b>UMI Level 6+</b></p>	<p align="center"><b>UMI Level 7+</b></p>
<p align="center"><b>Place Value</b></p> <p>Identify place value in whole numbers and decimals</p> <p align="center"><b>Operations</b></p> <p>Add and subtract whole numbers and decimals (to 3 decimal places) without a calculator</p> <p>Multiply a decimal (to 3 decimal places) by a whole number without a calculator</p> <p>Divide a decimal number by a whole number without a calculator</p> <p align="center"><b>Fractions</b></p> <p>Identify equivalent forms of fractions with denominators 2-12</p> <p>Multiply a fraction by a whole number</p> <p>Express tenths, hundredths and thousandths in both fractional and decimal forms</p> <p align="center"><b>Decimals and Percentages</b></p> <p>Develop an understanding of simple percentages and relate them to fractions and decimals</p> <p align="center"><b>Number Theory</b></p> <p>Identify square numbers</p>	<p align="center"><b>Place Value</b></p> <p>Identify place value in whole numbers and decimals</p> <p align="center"><b>Operations</b></p> <p>Add and subtract whole numbers and decimals (to 3 decimal places) without a calculator</p> <p>Multiply a decimal by a decimal without a calculator</p> <p>Divide a four-digit number by a two-digit number without a calculator</p> <p>Divide a decimal number by a decimal without a calculator</p> <p align="center"><b>Fractions</b></p> <p>Identify equivalent forms of fractions with denominators 2-12</p> <p>Multiply a fraction by a fraction</p> <p>Express tenths, hundredths and thousandths in both fractional and decimal forms</p> <p>Divide a whole number by a unit fraction</p> <p align="center"><b>Decimals and Percentages</b></p> <p>Use percentages and relate them to fractions and decimals</p> <p>Express quantities as percentages</p> <p align="center"><b>Number Theory</b></p> <p>Identify square numbers</p> <p>Identify simple square roots</p> <p>Recognise numbers written in exponential form</p> <p>Add simple positive and negative numbers</p>

## USA – (National Council of Teachers of Mathematics Principles & Standards)

Grades Pre- K – 2	Grades 3 - 5	Grades 6 – 8
UMI Levels 1- 3	UMI Levels 3-6	UMI Levels 7+
<p><b>Understand numbers and number systems</b> Count with understanding and recognize “how many” in sets of objects; Develop understanding of the relative position and magnitude of whole numbers; Develop a sense of whole numbers and represent and use them in flexible ways, including relating, composing and decomposing numbers; Connect number words and numerals to the quantities they represent, using various representations; Understand and represent commonly used fractions such as <math>\frac{1}{4}</math>, <math>\frac{1}{3}</math> and <math>\frac{1}{2}</math>;</p> <p><b>Understand meanings of operations and how they relate to one another</b> Understand various meanings of addition and subtraction of whole numbers and the relationship between the two operations; Understand the effects of adding and subtracting whole numbers; Understand situations that entail multiplication and division, such as equal groups of objects and sharing equally. Develop and use strategies for whole-number computations, with a focus on addition and subtraction; Develop fluency with basic number combinations for addition and subtraction.</p> <p><b>Connections</b> Recognize and use connections among</p>	<p><b>Understand numbers and number systems</b> Understand the place-value structure of the base-ten number system and be able to represent and compare whole numbers and decimals; Recognize equivalent representations for the same number and generate them by composing and decomposing numbers; Develop understanding of fractions as divisions of whole numbers; Recognize and generate equivalent forms of commonly used fractions, decimals and percents;</p> <p><b>Understand meanings of operations and how they relate to one another</b> Understand various meanings of multiplication and division; Understand the effects of multiplying and dividing whole numbers; Identify and use relationships between operations, such as division as the inverse of multiplication, to solve problems;</p> <p><b>Compute fluently and make reasonable estimates.</b> Develop fluency with basic number combinations for multiplication and division and use these combinations to mentally compute related problems, such as <math>30 \times 50</math>; Develop fluency in adding, subtracting, multiplying and dividing whole numbers;</p> <p><b>Connections</b> Recognize and use connections among</p>	<p><b>Understand numbers and number systems</b> Work flexibly with fractions, decimals and percents to solve problems; Develop meaning for percents greater than 100 and less than 1; Develop an understanding of large numbers and recognize and appropriately use exponential and scientific notation; Develop meanings for integers and represent and compare quantities with them.</p> <p><b>Understand meanings of operations and how they relate to one another</b> Understand the meaning and effects of arithmetic operations with fractions, decimals and integers; Use the associative and commutative properties of addition and multiplication and the distributive property of multiplication over addition to simplify computations with integers, fractions and decimals; Understand and use the inverse relationships of addition and subtraction, multiplication and division, and squaring and finding square roots to simplify computations and solve problems.</p> <p><b>Compute fluently and make reasonable estimates</b> Select appropriate methods and tools for computing with fractions and decimals; Develop and analyze algorithms for computing with fractions, decimals and integers and develop fluency with their use;</p>

<p>mathematical ideas; Understand how mathematical ideas interconnect and build on one another to produce a coherent whole;</p>	<p>mathematical ideas; Understand how mathematical ideas interconnect and build on one another to produce a coherent whole;</p>	<p>Develop and use strategies to estimate the results of rational-number computations and judge the reasonableness of the results; <b>Connections</b> Recognize and use connections among mathematical ideas; Understand how mathematical ideas interconnect and build upon one another to produce a coherent whole;</p>
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“**Principles and Standards**” reflects the most current thinking, research, experience, and expertise of a wide variety of groups with an interest in mathematics education. According to Joan Ferrini-Mundy, chair of the 26-member NCTM writing group, **Principles and Standards** provides guidelines for excellence in mathematics education and issues a call for all students to engage in more challenging mathematics. It features ten standards addressing the mathematical content and process that students should know in each of the pre-kindergarten through grade twelve years.

For further details visit the website at:

[www.nctm.org/standards](http://www.nctm.org/standards)

## CONTENT DESCRIPTORS

### Counting / Numeration

1a	50	Count groups of objects to 5
1a	25	(Numbers 1 – 4) + 1
1a	25	(Numbers 2-5) - 1
	<b>100</b>	
1b	50	Count groups of objects to 10
1b	25	(Numbers 0 – 9) + 1
1b	25	(Numbers 1 - 10) - 1
	<b>100</b>	
2	10	(Numbers 0 – 9) + 1
2	10	(Numbers 1 - 10) - 1
2	25	(Numbers 10 – 19) + 1
2	25	(Numbers 11 - 20) - 1
2	15	(Numbers 0 – 8) + 2
2	15	(Numbers 2 – 10) - 2
	<b>100</b>	
3a	7	(Numbers 0 – 19) + 1
3a	8	(Numbers 1 - 20) - 1
3a	10	(Numbers 20 – 29) + 1
3a	10	(Numbers 21 - 30) - 1
3a	7	(Even numbers 0 – 28) + 2
3a	8	(Even numbers 2 – 30) - 2
3a	7	(Odd numbers 1-7) + 2
3a	8	(Odd numbers 3-9) - 2
3a	7	(Numbers 0,5,10,15,20,25) + 5
3a	8	(Numbers 5,10,15,20) - 5
3a	10	(Numbers 1 – 9) + 10
3a	10	(Numbers 11 – 19) - 10
	<b>100</b>	

- 3b 7 (Numbers 0 – 49) + 1
- 3b 8 (Numbers 1 - 50) - 1
- 3b 7 (Numbers 1 – 19) + 10
- 3b 8 (Numbers 11 – 29) - 10
- 3b 7 (Even numbers 0 – 48) + 2
- 3b 8 (Even numbers 2 – 50) - 2
- 3b 7 (Odd numbers 1-17) + 2
- 3b 8 (Odd numbers 3-19) - 2
- 3b 7 (Numbers 0,5,10,15,20,25,30,35,40,45) + 5
- 3b 8 (Numbers 5,10,15,20,25,30,35,40,45,50) - 5
- 3b 7 (10 multiples 0 – 40) + 10
- 3b 8 (10 multiples 10 – 50) - 10
- 3b 10 x tens (from 1 ten to 4 tens), y ones (from 1 one to 9 ones) written vertically

**100**

- 3c 8 (Numbers 0 – 99) + 1
- 3c 7 (Numbers 1 - 100) - 1
- 3c 8 (Numbers 1 – 40) + 10
- 3c 7 (Numbers 11 – 49) - 10
- 3c 5 (Even numbers 0 – 48) + 2
- 3c 5 (Even numbers 2 – 50) - 2
- 3c 8 (Odd numbers 1-47) + 2
- 3c 7 (Odd numbers 3-49) - 2
- 3c 8 (5 multiples 0-95) + 5
- 3c 5 (5 multiples 5-100) - 5
- 3c 7 (10 multiples 0 – 90) + 10
- 3c 8 (10 multiples 10 – 100) - 10
- 3c 7 x tens (from 1 ten to 9 tens), y ones (from 1 one to 9 ones) written vertically
- 3c 10 2 digit number with one digit highlighted eg 47 with 7 highlighted. "Value of" on one line, number on 2nd line

**100**

- 4a 2 (Numbers 0 – 99) + 1
- 4a 3 (Numbers 1 - 100) - 1
- 4a 7 (100 Multiples 100 – 800) + 100
- 4a 8 (100 Multiples 100 – 800) - 100
- 4a 5 (Numbers 1 – 90) + 10
- 4a 5 (Numbers 11 – 99) - 10

- 4a 5 (Even numbers 0 – 98) + 2
- 4a 5 (Even numbers 2 – 100) - 2
- 4a 5 (Odd numbers 1 - 97) + 2
- 4a 5 (Odd numbers 3 -99) - 2
- 4a 7 (5 multiples 0 - 95) + 5
- 4a 8 (5 multiples 5 - 50) - 5
- 4a 7 (10 multiples 0 – 190) + 10
- 4a 8 (10 multiples 10 – 200) - 10
- 4a 7 x tens (from 1 ten to 9 tens), y ones (from 1 one to 9 ones) written vertically
- 4a 8 2 digit number with one digit highlighted eg 47 with 7 highlighted. "Value of" on one line, number on 2nd line
- 4a 3 (3 multiple 0-57) + 3
- 4a 2 (3 multiple 3-60) - 3

**100**

- 4b 5 (Numbers 0 – 998) + 1
- 4b 5 (Numbers 1 - 999) - 1
- 4b 5 (Numbers 1 – 980) + 10
- 4b 5 (Numbers 11 – 999) - 10
- 4b 5 (10 multiples 0 – 980) + 10
- 4b 5 (10 multiples 10 – 990) - 10
- 4b 8 (Numbers 0 – 899) + 100
- 4b 8 (Numbers 100 – 999) - 100
- 4b 3 (Even numbers 0 – 98) + 2
- 4b 3 (Even numbers 2 – 100) - 2
- 4b 3 (Odd numbers 1 - 97) + 2
- 4b 3 (Odd numbers 3 -99) - 2
- 4b 3 (5 multiples 0 - 95) + 5
- 4b 5 (5 multiples 5 - 100) - 5
- 4b 5 (10 multiples 0 – 980) + 10
- 4b 5 (10 multiples 10 – 990) - 10
- 4b 8 2- or 3-digit number with one digit highlighted. "Value of" on one line, number on 2nd line
- 4b 8 (3 multiple 0-57) + 3
- 4b 8 (3 multiple 3-60) - 3

**100**

- 5a 8 (Numbers 1000 – 9998) +/- 1

**5a** 12 (Numbers 1000 – 9989) +/- 10  
**5a** 12 (Numbers 1100 – 9899) +/- 100  
**5a** 10 (Numbers 1000 – 8999) +/- 1000  
**5a** 12 (Numbers 1 - 999) x 10  
**5a** 8 (10 multiples 10 – 9990) ÷ 10  
**5a** 16 3- or 4-digit number with one digit highlighted. "Value of" on one line, number on 2nd line  
**5a** 12 (50 multiples 0 – 950) + 50  
**5a** 10 (50 multiples 50 – 1000) - 50  
**100**

**5b** 37 (50 multiples 0 – 9950) +/- 50  
**5b** 38 (500 multiples 500 – 5000) +/- 500  
**5b** 25 (Numbers 1 – 20) x 100  
**100**

**6** 6 (Numbers 10 000 – 99 998) +/- 1  
**6** 10 (Numbers 10 000 – 99 989) +/- 10  
**6** 10 (Numbers 10 100 – 99 899) +/- 100  
**6** 9 (Numbers 10 000 – 98 999) +/- 1000  
**6** 10 5-digit number with one digit highlighted. "Value of" on one line, number on 2nd line  
**6** 10 (Numbers 1000 - 9999) x 10  
**6** 9 (10 multiples 1000 – 99 990) ÷ 10  
**6** 9 (Numbers 100 - 999) x 100  
**6** 9 (100 multiples 100 – 99 000) ÷ 100  
**6** 9 (100 multiples 100 – 1000) x 1000  
**6** 9 (1000 multiples 10 000 – 100 000) ÷ 1000  
**100**

**7a** 40 (2-digit number) ÷ 10  
**7a** 40 (Numbers 1 – 19.9) +/- 0.1  
**7a** 20 (Multiples of 0.5 from 0.5 – 10) +/- 0.5 eg 1.5 + 0.5  
**100**

**7b** 20 (2- or 3-digit number) ÷ 10  
**7b** 20 (2-digit number) x 0.1

<b>7b</b>	20	(Numbers with 2 digits and 1 decimal place eg 76.2) +/- 0.1
<b>7b</b>	20	Given a number with 2 digits plus 1 dec. place with one number highlighted. "Value of" on one line, number on 2nd line
<b>7b</b>	20	(Multiples of 0.5 from 10.5 – 20) +/- 0.5 eg 15 - 0.5 (Write integers as either 15 or 15.0)
	<b>100</b>	
<b>8</b>	25	(2- or 3-digit number) ÷ 100
<b>8</b>	25	(3-digit number) x 0.01
<b>8</b>	25	4-, 5- or 6-digit integer with one digit highlighted. "Value of" on one line, number on 2nd line
<b>8</b>	25	Given a number with tens, ones and 2 dec. places with one digit highlighted. "Value of" on one line, number on 2nd line
	<b>100</b>	
<b>9</b>	8	(Numbers with 1 or 2 digits and 1 or 2 decimal places eg 76.21) +/- 0.01
<b>9</b>	8	(2-, 3- or 4-digit number) ÷ 1000
<b>9</b>	8	(2-, 3- or 4-digit number) x 0.001
<b>9</b>	12	(2- or 3-digit number) ÷ 0.1
<b>9</b>	12	(2- or 3-digit number) ÷ 0.01
<b>9</b>	8	(Negative integers 0 to –100) + 1
<b>9</b>	8	(Negative integers 0 to –100) - 1
<b>9</b>	11	(Negative integers 0 to –100) + 10
<b>9</b>	7	(Negative integers 0 to –100) - 10
<b>9</b>	11	(Negative integers 0 to –100) + 5
<b>9</b>	7	(Negative integers 0 to –100) - 5
	<b>100</b>	

## Addition

<b>1a</b>	100 <b>100</b>	Number pairs totalling 2 to 5, no zeros eg 1+1 up to 4+1 or 1+4
<b>1b</b>	100 <b>100</b>	Number pairs totalling 0 to 5 eg 0+0 to 3+2etc
<b>2a</b>	100 <b>100</b>	Number pairs totalling 0 to 8
<b>2b</b>	75	Number pairs totalling 0 to 10
<b>2b</b>	25 <b>100</b>	(Numbers 0-19) +1
<b>3a</b>	100 <b>100</b>	Number pairs totalling 0 to 15
<b>3b</b>	70	Single digit number pairs
<b>3b</b>	10	Addition of 3 single digit numbers, totals up to and including 20 eg 7+3+6
<b>3b</b>	20 <b>100</b>	(Numbers 0-99) +1
<b>4a</b>	30	Number pairs totalling up to and including 20
<b>4a</b>	14	Ten multiples totalling 0 – 100
<b>4a</b>	12	Doubles of any numbers up to 20
<b>4a</b>	12	Addition of 3 numbers, totals up to and including 30 eg 7+3+6
<b>4a</b>	12	Addition of 3 ten multiples, totals up to and including 100
<b>4a</b>	10	Pairs of ten multiples totalling 100. eg 30 +?=100
<b>4a</b>	10 <b>100</b>	Teens number + twenties number no regrouping eg 26+12
<b>4b</b>	9	Doubles of any numbers up to 50
<b>4b</b>	25	Number pairs totalling up to and including 50 eg 32+14,8+15
<b>4b</b>	9	Teens number + twenties number no regrouping eg 26+12
<b>4b</b>	9	(Teens number) + (twenties number) with regrouping eg 26+15

<b>4b</b>	13	Number pairs totalling 100 eg $42+?=100$
<b>4b</b>	9	(3-digit 100 multiples) + (1-digit)
<b>4b</b>	9	(Numbers 0-999) + 1
<b>4b</b>	9	Five multiples totalling 100 eg $45 + ? = 100$
<b>4b</b>	8	Addition of 3 numbers, totals up to and including 50 eg $19+21+5$
	<b>100</b>	
<b>5a</b>	7	Pairs of hundred multiples totalling 200 – 1000 eg $400+500$
<b>5a</b>	7	(Numbers 0-990) + 10
<b>5a</b>	7	(Numbers 0-900) + 100
<b>5a</b>	10	Number pairs totalling 50, eg $32 + ? = 50$
<b>5a</b>	10	(Ten multiple) + (2- or 3-digit), no 100s regrouping
<b>5a</b>	18	Number pairs totalling up to and including 100
<b>5a</b>	10	(Numbers 0-88) + 11
<b>5a</b>	10	(Numbers 0-91) + 9
<b>5a</b>	7	(Numbers 0 – 100) + (1-digit)
<b>5a</b>	7	(Teens number) + (twenties number) no regrouping eg $26+15$
<b>5a</b>	7	Addition of 3 numbers, totals up to and including 50 eg $19+31+25$
	<b>100</b>	
<b>5b</b>	9	(Numbers 0-81) + 19
<b>5b</b>	10	(3-digit) +9, no regrouping
<b>5b</b>	9	(Numbers 0-9900) + 100
<b>5b</b>	18	(2-digit) + (2-digit) , no regrouping
<b>5b</b>	18	(3-digit) + (2-digit), no regrouping
<b>5b</b>	8	Addition for any 3-digit number to make next highest 100 multiple eg $278+?=300$
<b>5b</b>	12	Addition of 3 numbers, totals up to and including 100 eg $19+31+25$
<b>5b</b>	8	(3-digit) +11, no regrouping
<b>5b</b>	8	(Numbers 0-79) + 21
	<b>100</b>	
<b>6</b>	15	(Numbers 0-99 000) + 1000
<b>6</b>	15	Fifty multiples totalling 1000 e.g. $350 + 650$
<b>6</b>	15	(2-digit 10 multiple) + (4-digit) no regrouping eg $4560 + 30$
<b>6</b>	27	(2-digit)+(2-digit)
<b>6</b>	13	(2-digit) + (2-digit), 10s and 100s regrouping eg $57+49$

<b>6</b>	15	(3-digit)+ (2-digit), no regrouping eg 364 + 28
	<b>100</b>	
<b>7</b>	10	(3-digit)+ (4-digit) no regrouping.
<b>7</b>	10	(1-digit) + (3- or 4-digit) across 1000s (e.g. 992 + 9)
<b>7</b>	10	(3-digit) + 21 (no 100s regrouping.)
<b>7</b>	10	(3-digit) + 31 (no 100s regrouping)
<b>7</b>	16	(1-digit) + (2- or 3-digit) with regrouping eg 195+7
<b>7</b>	13	(3-digit) + 111, 121, 131 not crossing a second 100s bound.
<b>7</b>	18	(Numbers 0 – 1000) + (2-digit)
<b>7</b>	13	(4-digit 100 multiple) + (4-digit 100 multiple)
	<b>100</b>	
<b>8</b>	10	(Numbers 0 – 1000) + (2-digit)
<b>8</b>	12	(3-digit) + 21 (with regrouping)
<b>8</b>	12	(3-digit) + 31 (with regrouping.)
<b>8</b>	12	Add 4-digit multiples of 500 eg 4500 +2500
<b>8</b>	12	Pairs of 500 multiples totalling 10 000 eg 6500 + ? = 10 000
<b>8</b>	15	(10 multiple) + (2- or 3-digit ten multiple) with regrouping eg 370+40
<b>8</b>	12	(3-digit) + 29 (no regrouping) eg 724+29
<b>8</b>	15	(Teens number) + (3- or 4-digit) with regrouping e.g. 992 + 19
	<b>100</b>	
<b>9</b>	50	(2-digit) + (3- or 4-digit) with regrouping e.g. 992 + 29
<b>9</b>	25	(3-digit) + 109, 119, 129 no regrouping of 100s eg 167 +129 not 177 + 129
<b>9</b>	25	(4-,5- or 6-digit) +(1000 multiple)
	<b>100</b>	
<b>10</b>	22	(3-digit) + 109, 119, 129 (no regrouping 100s)
<b>10</b>	22	(3-digit) + 121, 131 (regroup 100s)
<b>10</b>	56	(1-, 2-, 3- or 4-digit) + (1-, 2-, 3- or 4-digit)
	<b>100</b>	

## Subtraction

1	75	(Numbers 2-9) - (numbers 1-9) eg 7-2, no zero answers
1	25	(Numbers 2-20) - 1
	<b>100</b>	
2	20	(Numbers 1-9) - (numbers 0-9) eg 7-2, including zero answers
2	20	(Numbers 10 to 100) - 10 eg 76-10
2	20	(Numbers 9-50) - any single digit no.
2	20	Teens number - any 1-digit number (no decomposition) eg 17-5
2	20	(Numbers 1-100) minus 1
	<b>100</b>	
3	10	Teen number - 1-digit number (decomposition) eg 17-8
3	10	20s number - 1-digit number (no decomp) eg 27-5
3	12	Ten multiples (10-100) – a ten multiple eg 60-10
3	10	(Numbers 9 – 100) - (1-digit number) eg 78-6, 56-9
3	12	20s number - teens number across 20s bound eg 23-18
3	10	(Numbers 1-1000) – 1 eg 456-1, 650-1
3	11	(Numbers 10-1000) – 10 eg 453-10
3	10	(Numbers 100-1000) – 100 eg 675-100
3	15	20s number - 1-digit number crossing 20s bound eg 27-8
	<b>100</b>	
4	9	(2-digit) - teens number (no decomp) eg 46-15
4	8	(Ten multiples 10-990) – (1-digit number) eg 560-6
4	8	(Numbers 9-99) – 9 eg 41-9
4	9	(2-digit) – (2 digit) - difference is a single-digit number eg 45-36
4	8	(3-digit)- ten multiple (no decomp) eg 345-40
4	8	(Numbers 10-999) -10
4	8	(Numbers 100-999) -100
4	9	(3-digit) - (1- or 2-digit)- no decomposition eg 743-21
4	8	(2-digit) -ten multiple (no decomp) eg 56-30
4	9	(2-digit) - (2-digit) no decomposition eg 67-34

4	8	(Numbers 20-99) – 20
4	8	(Numbers 21-99) – 21 eg 45-21
	<b>100</b>	
5	7	(2-digit) - teens number (no decomp) eg 46-15
5	7	(2-digit) - (1- or 2 digit) no decomposition
5	7	(Numbers 11-99) – 11 eg 34-11
5	6	(Numbers 19-99) – 19
5	7	(2-digit) - ten multiple eg 56-30
5	8	(2-digit) - (2-digit) no decomposition
5	6	(2-digit) - 29
5	6	(Numbers 100-10 000) – 100 eg 4623-100
5	7	(3-digit ten multiple) - ten multiple with decomp eg 560- 80
5	6	(Numbers 111-199) – 11 eg 156-11, 170-11
5	7	( 3-digit multiple of 100) - ( single-digit number) eg 500-7
5	7	(3-digit) - (2-digit) no decomp eg 569 – 27.
5	7	(3-digit) - (2-digit ten multiple) no decomp eg 345-40 but not 723 - 40
5	6	(3-digit) - 11 , no decomp eg 185-11 but not 209-11
5	6	(3-digit) -9 no decomp
	<b>100</b>	
6	7	(3-digit) - (2-digit) , no decomp
6	7	(2-digit) - (1- or 2- digit), with decomp eg 45-27, 56-8
6	7	(3-digit) - 29 - no 100s decomp eg 834 -29
6	8	Subtraction of single-digit numbers across a 100s bound eg 403-6
6	7	(4-digit) - (ten multiple) no 100s decomp eg 7689-70
6	7	(4-,5- or 6-digit) - (1000 multiple) no decomp eg 654398 -4000
6	7	(Numbers 1000-99 999) – 1000
6	8	(3-digit) - (1- or 2-digit)
6	7	(3-digit) – (3-digit ) with difference of a single-digit number eg 345-336
6	7	(3 digit) -11 no decomp eg 342-11
6	7	(3- or 4-digit) - (1-digit) across a 1000s bound. (e.g. 6004 – 8 )
6	7	(3-digit) - 19 , no100s decomp e.g. 343-19 but not 313-19
6	7	(4-digit) - (hundred multiple) no decomp eg 5632-400
6	7	(4-,5- or 6-digit) - (thousand multiple) no decomp eg 657398 -6000
	<b>100</b>	

7	12	(4-,5- or 6-digit) - (thousand multiple) no decomp eg 657398 -6000
7	15	(3-digit) - (1-,2- or 3-digit)
7	12	(4-digit) – (4-digit) with a difference of a single-digit number 5462 -5458
7	13	(4-digit 100 multiple) - (4-digit 100 multiple) eg 5600-2800
7	12	(100 multiples 100-10 000) – (1-digit) eg 2500-7
7	12	(1000 multiples 1000-99 000) – (1-digit) eg 4000-6
7	12	(4-digit) - (10 multiple) with decomp eg 7539-60
7	12	(4-digit) – (100 multiple) with 1000s decomp eg 5278-400
	<b>100</b>	
8	20	(4-digit) – (100 multiple) with 1000s decomp eg 5278-400
8	20	(4-,5- or 6-digit)- (1000 multiple) with decomp eg 655398 -6000
8	20	(3-digit) - 109, 119, 129 not crossing second 100s bound eg 467 - 129
8	20	(3-digit) - 111, 121, 131 not crossing second 100s bound eg 750 - 131
8	20	(3-digit) – (3-digit ) with a difference of a teens number (no 100s decomp) eg 564-547, not 401-387
	<b>100</b>	
9	25	(4-,5- or 6-digit) - (1000 multiple) with decomp eg 655398 -6000
9	25	(4-digit)– (4-digit) no decomp eg 4728-1317
9	25	(4 digit) - (1-,2-,3- or 4-digit), no decomp
9	25	(4-digit) – (4-digit) with a difference of a teens number (no 1000s decomp) eg 6503-6489, not 6007-5991
	<b>100</b>	
10	16	(4-digit) - (4-digit) no decomp. eg 4728-1317
10	16	(3-digit)- 109, 119, 129 crossing second 100s bound eg 319 - 131
10	16	(3-digit)- 111, 121, 131 crossing a second 100s bound.
10	16	(4-digit)– (4-digit) with decomp. eg 4328- 2954
10	16	(4-digit) – (4-digit) with a difference of a teens number, crossing 1000s bound eg 6007-5991
10	20	(4-digit) - (1-,2- or 3-digit)
	<b>100</b>	

## Extension Multiplication

<b>3</b>	50	Double (numbers 1 – 10)
<b>3</b>	15	2 lots of (numbers 1 – 10)
<b>3</b>	20	2 groups of (numbers 1-10)
<b>3</b>	5	3 groups of 2
<b>3</b>	5	4 groups of 2
<b>3</b>	5	5 groups of 2
	<b>100</b>	
<b>4</b>	25	Double (numbers 1 – 15)
<b>4</b>	10	Double (ten multiples 10 – 40)
<b>4</b>	10	Double (5 multiples from 5 – 30)
<b>4</b>	15	2 groups of (numbers 1-10)
<b>4</b>	10	3 groups of 2, 5, 10
<b>4</b>	10	4 groups of 2, 5, 10
<b>4</b>	10	5 groups of 2, 3, 4, 10
<b>4</b>	10	10 groups of 2,3,4,5
	<b>100</b>	
<b>5a</b>	10	Double (numbers 10 – 30)
<b>5a</b>	10	Double (ten multiples from 10 – 50)
<b>5a</b>	10	Double (5 multiples from 5 – 40)
<b>5a</b>	10	2 groups of (numbers 1-10)
<b>5a</b>	10	3 groups of 2, 3, 4, 5, 10
<b>5a</b>	10	4 groups of 2, 3, 4, 5, 10
<b>5a</b>	10	5 groups of 2, 3, 4, 5, 10
<b>5a</b>	5	6 groups of 2, 10
<b>5a</b>	10	10 groups of 2, 3, 4, 5, 6, 7, 8
<b>5a</b>	10	Use x symbol – 2 x (numbers 1 – 10)
<b>5a</b>	5	(3, 4, 5) x 2
	<b>100</b>	

<b>5b</b>	10	Double (ten multiples from 10 – 50)
<b>5b</b>	5	Double (5 multiples from 5 – 50)
<b>5b</b>	5	2 groups of (numbers 1-10)
<b>5b</b>	5	3 groups of 2, 3, 4, 5, 10
<b>5b</b>	5	4 groups of 2, 3, 4, 5, 10
<b>5b</b>	5	5 groups of 2, 3, 4, 5, 10
<b>5b</b>	5	6 groups of 2, 5, 10
<b>5b</b>	10	10 groups of 2, 3, 4, 5, 6, 7, 8, 9
<b>5b</b>	10	Use x symbol – 2 x (numbers 1 – 10)
<b>5b</b>	10	Use x symbol – 3 x (1, 2, 3, 4, 5, 10)
<b>5b</b>	10	Use x symbol – 5 x (numbers 1 – 5)
<b>5b</b>	10	Use x symbol – 10 x (numbers 1 – 5)

**100**

<b>5c</b>	10	Double (numbers 30 – 50)
<b>5c</b>	5	Double (ten multiples from 10 – 50)
<b>5c</b>	5	Double (5 multiples from 5 – 50)
<b>5c</b>	5	Double (100 multiples from 100 – 400)
<b>5c</b>	5	2 times (numbers 0-10)
<b>5c</b>	5	3 times (numbers 0-10)
<b>5c</b>	5	4 times (numbers 0-10)
<b>5c</b>	5	5 times (numbers 0-10)
<b>5c</b>	5	6 times(0,1, 2, 3, 4, 5, 10)
<b>5c</b>	5	10 times (numbers 0-9)
<b>5c</b>	5	Use x symbol – 2 x (numbers 0 – 10)
<b>5c</b>	7	Use x symbol – 3 x (0, 1, 2, 3, 4, 5, 10)
<b>5c</b>	8	Use x symbol – 4 x (numbers 0 – 10)
<b>5c</b>	10	Use x symbol – 5 x (numbers 0 – 5)
<b>5c</b>	5	Use x symbol – 6 x (numbers 0 – 5)
<b>5c</b>	10	Use x symbol – 10 x (numbers 0 – 10)

**100**

<b>6a</b>	5	0 x (numbers 0 – 10)
<b>6a</b>	7	Double (100 multiples from 100 – 1000)
<b>6a</b>	15	Use symbols to represent an unknown number in any position in a multiplication sentence (numbers 0 – 7) x (numbers 0 – 10) eg $3 \times ? = 12$ $? \times 4 = 12$ $3 \times 4 = ?$
<b>6a</b>	15	Multiply (numbers 0 – 7) by (numbers 0-10)
<b>6a</b>	15	Product of (numbers 0 – 7) and (numbers 0-10)
<b>6a</b>	20	Use x symbol – (numbers 0 -7) x (numbers 0 – 10)
<b>6a</b>	12	(2-digit number) x 10
<b>6a</b>	11	(10 multiples 0-90) x (numbers 0 - 7)
	<b>100</b>	
<b>6b</b>	7	0 x (numbers 0 – 10)
<b>6b</b>	7	Double (10 multiples from 100 – 500) eg Double 460
<b>6b</b>	13	Use symbols to represent an unknown number in any position in a multiplication sentence (numbers 0 – 7) x (numbers 0 – 10)
<b>6b</b>	10	Multiply (numbers 0 – 9) by (numbers 0-10)
<b>6b</b>	10	Product of (numbers 0 – 9) and (numbers 0-10)
<b>6b</b>	23	Use x symbol – (numbers 0 -9) x (numbers 0 – 10)
<b>6b</b>	10	(2-digit number) x 10
<b>6b</b>	8	(2-digit number) x 100
<b>6b</b>	7	(3-digit number) x 10
<b>6b</b>	5	(10 multiples 0-90) x (numbers 0 - 7)
	<b>100</b>	
<b>6c</b>	5	0 x (numbers 0 – 10)
<b>6c</b>	7	Double (10 multiples from 100 – 500) eg Double 460
<b>6c</b>	13	Use symbols to represent an unknown number in any position in a multiplication sentence (numbers 0 – 7) x (numbers 0 – 10)
<b>6c</b>	7	Multiply (numbers 0 – 9) by (numbers 0-10)
<b>6c</b>	8	Product of (numbers 0 – 9) and (numbers 0-10)
<b>6c</b>	15	Use x symbol – (numbers 0 -9) x (numbers 0 – 10)
<b>6c</b>	8	(2-digit number) x 10
<b>6c</b>	8	(2-digit number) x 100
<b>6c</b>	7	(3-digit number) x 10
<b>6c</b>	5	(3-digit 100 multiples) x (numbers 2-9) eg $400 \times 3$
<b>6c</b>	10	(10 multiples 0-90) x (numbers 0 - 7)
<b>6c</b>	7	(2-digit number) x (number 2-9) no regrouping eg $11 \times 9$ , $23 \times 3$ , $32 \times 4$
	<b>100</b>	

<b>7a</b>	5	0 x (numbers 0 – 10)
<b>7a</b>	7	Double (10 multiples from 100 – 900) eg Double 680
<b>7a</b>	13	Use symbols to represent an unknown number in any position in a multiplication sentence (numbers 0 – 7) x (numbers 0 – 10) eg $3 \times ? = 12$ $? \times 4 = 12$ $3 \times 4 = ?$
<b>7a</b>	8	Multiply (numbers 4 – 9) by (numbers 0-10)
<b>7a</b>	7	Product of (numbers 4 – 9) and (numbers 0-10)
<b>7a</b>	15	Use x symbol – (numbers 4 -9) x (numbers 0 – 10)
<b>7a</b>	8	(2- or 3-digit number) x 10
<b>7a</b>	7	( 2- or 3-digit number) x 100
<b>7a</b>	5	(3-digit 100 multiple) x (numbers 2-9) eg $400 \times 3$
<b>7a</b>	5	(4-digit 1000 multiple) x (numbers 2-9) eg $4000 \times 9$
<b>7a</b>	10	(10 multiples 0-90) x (numbers 5-10)
<b>7a</b>	10	(2-digit number) x (number 2-9) no regrouping eg $11 \times 9$ , $23 \times 3$ , $32 \times 4$
	<b>100</b>	
<b>7b</b>	5	**Double (10 multiples from 100 – 900) eg Double 680
<b>7b</b>	5	Use symbols to represent an unknown number in any position in a multiplication sentence (numbers 0 – 7) x (numbers 0 – 10) eg $3 \times ? = 12$ $? \times 4 = 12$ $3 \times 4 = ?$
<b>7b</b>	5	(3-digit 100 multiple) x (numbers 2-9) eg $400 \times 3$
<b>7b</b>	5	(4-digit 1000 multiple) x (numbers 2-9) eg $4000 \times 9$
<b>7b</b>	5	(2-digit number) x (number 2-9) no regrouping eg $11 \times 9$ , $23 \times 3$ , $32 \times 4$
<b>7b</b>	10	Product of (numbers 4 – 9) and (numbers 0-10)
<b>7b</b>	5	0 x (numbers 0 – 20)
<b>7b</b>	10	Product of (2-digit 10 multiple) and (numbers 4-10) eg 40 and 9
<b>7b</b>	10	Multiply (2-digit 10 multiple) by (numbers 4-10) 70 by 6
<b>7b</b>	10	(2-digit number) x 1000
<b>7b</b>	10	(2-digit number) x (number 2-9) with regrouping eg $17 \times 9$ , $23 \times 7$ , $32 \times 9$
<b>7b</b>	10	(2-digit 10 multiple) x (2-digit 10 multiple) eg $60 \times 50$
<b>7b</b>	10	(3-digit 100 multiple) x (2-digit 10 multiple) eg $400 \times 30$
	<b>100</b>	

**8** 10 (2-digit number) x (number 2-9) with regrouping eg 17x9, 23x7, 32x9  
**8** 5 (2-digit 10 multiple) x (2-digit 10 multiple) eg 60 x 50  
**8** 5 (3-digit 100 multiple) x (2-digit 10 multiple) eg 400 x 30  
**8** 5 (numbers 1-100) x (numbers 0 or 1)  
**8** 10 Product of (numbers 4-10) and (2-digit 10 multiple) (7 and 50)  
**8** 10 Multiply (numbers 4-10) by (2-digit 10 multiple)  
**8** 10 Product of (numbers 4-10) and (3-digit 100 multiple)  
**8** 10 Multiply (numbers 4-10) by (3-digit 100 multiple)  
**8** 10 (4-digit 100 multiple) x (numbers 2-9) eg 5400 x 3  
**8** 10 (3-digit number) x 1000  
**8** 10 (3-digit 10 multiple) x (numbers 3-10) eg 140 x 8

**100**

**9** 3 (numbers 1-100) x (numbers 0 or 1)  
**9** 7 (4-digit 100 multiple) x (numbers 2-9) eg 5400 x 3  
**9** 7 (3-digit 10 multiple) x (numbers 3-10) eg 140 x 8  
**9** 10 (2-digit number) x (11, 12) eg 37 x 11, 59 x 12  
**9** 8 (4-digit 50 multiple) x (2-digit 10 multiple) 6850 x 40  
**9** 8 Product of (numbers 4-10) and (2-digit 10 multiple)  
**9** 8 Multiply (numbers 4-10) by (2-digit 10 multiple)  
**9** 8 Product of (numbers 4-10) and (3-digit 100 multiple)  
**9** 8 (numbers 4-10) x (3-digit 100 multiple) eg 7 x 400  
**9** 8 (4-digit 100 multiple) x (numbers 2-9) eg 5400 x 3  
**9** 5 (3-digit number) x 1000  
**9** 5 (3-digit 10 multiple) x (numbers 3-10) eg 140 x 8  
**9** 5 (3-digit 10 multiple) x (2-digit 10 multiple) eg 670 x 80  
**9** 10 (3-digit number) x (number 2-10) with regrouping eg 345 x 7

**100**

<b>10</b>	5	(4-digit 50 multiple) x (2-digit 10 multiple) eg 6850 x 40
<b>10</b>	7	(4-digit 100 multiple) x (numbers 2-9) eg 5400 x 3
<b>10</b>	7	(3-digit 10 multiple) x (2-digit 10 multiple) eg 670 x 80
<b>10</b>	5	(3-digit number) x (number 2-10) with regrouping eg 345 x 7
<b>10</b>	7	(3-digit number) x (11, 12) eg 357 x 11, 598 x 12
<b>10</b>	8	(4-digit 10 multiple) x (number 3-9) eg 4560 x 6
<b>10</b>	11	(4-digit number) x (number 2-9) with regrouping
<b>10</b>	8	(3-digit 100 multiple) x (3-digit 100 multiple) eg 400 x 300
<b>10</b>	7	(4-digit 10 multiple) x (2-digit 10 multiple) eg 3550 x 90
<b>10</b>	7	(4-digit 100 multiple) x (2-digit 10 multiple) eg 3700 x 50
<b>10</b>	8	(4-digit 1000 multiple) x (2-digit 10 multiple) eg 4000 x 90
<b>10</b>	8	(4-digit 1000 multiple) x (3-digit 10 multiple) eg 4000 x 190
<b>10</b>	7	(4-digit 1000 multiple) x (3-digit 100 multiple) eg 4000 x 900
	<b>100</b>	

## Extension Division

4	50	Half of (even numbers 2 – 20)
4	20	Divide (even numbers 2-20) by 2
4	10	Half of (10 multiples 20, 40, 60, 80)
4	10	(2 lines) How many 2s? Next line: (even number 2-20)
4	10	(2 lines) How many 10s? Next line: (10 multiple 10-100)
	<b>100</b>	
<b>5a</b>	25	Half of (even numbers 2 – 30)
<b>5a</b>	10	Half of (twenty multiples 10 – 100)
<b>5a</b>	15	Divide (even numbers 2-30) by 2
<b>5a</b>	6	How many 3s? (numbers 6,15,30)
<b>5a</b>	6	Divide (6,15,30) by 3
<b>5a</b>	6	How many 4s? (numbers 8,20,40)
<b>5a</b>	6	Divide (8,20,40) by 4
<b>5a</b>	6	How many 5s? (numbers 10, 15, 20, 50)
<b>5a</b>	6	Divide (10,15,20,50) by 5
<b>5a</b>	8	How many 10s? (numbers 20,30,40,50)
<b>5a</b>	6	Divide (20,30,40,50) by 10
	<b>100</b>	
<b>5b</b>	7	Half of (even numbers 20 – 60)
<b>5b</b>	8	Half of (ten multiples from 0 – 200)
<b>5b</b>	8	(even numbers 2-100) $\div$ 2 (use symbol)
<b>5b</b>	5	How many 3s? (numbers 6, 9, 12, 15, 30)
<b>5b</b>	5	Divide (6, 9, 12, 15, 30) by 3
<b>5b</b>	6	Use $\div$ symbol (numbers 6, 9, 12, 15, 30) $\div$ 3
<b>5b</b>	5	How many 4s? (numbers 8, 12,16, 20, 40)
<b>5b</b>	6	Divide (8, 12,16, 20, 40) by 4
<b>5b</b>	7	Use $\div$ symbol (numbers 8, 12, 16, 20, 40) $\div$ 4
<b>5b</b>	6	How many 5s? (numbers 10, 15, 20, 25, 50)
<b>5b</b>	6	Divide (10, 15, 20, 25, 30, 50) by 5
<b>5b</b>	6	Use $\div$ symbol (numbers 10, 15, 20, 25, 30, 50) $\div$ 5
<b>5b</b>	6	How many 6s?(numbers 12, 60)

<b>5b</b>	2	Divide (12, 60) by 6
<b>5b</b>	2	Use $\div$ symbol (12, 60) $\div$ 6
<b>5b</b>	8	How many 10s?(numbers 20, 30, 40, 50, 60, 70, 80, 90)
<b>5b</b>	7	Use $\div$ symbol (10 multiples 20 - 90) $\div$ 10
	<b>100</b>	
<b>5c</b>	10	(3-digit 10 multiple) $\div$ 10 eg 450 $\div$ 10
<b>5c</b>	10	Divide (even numbers 40 – 100) by 2
<b>5c</b>	10	Half of (20 multiples from 100 – 200)
<b>5c</b>	10	Half of (numbers 10, 30, 50, 70, 90)
<b>5c</b>	10	(200, 400, 600, 800, 1000) $\div$ 2
<b>5c</b>	10	How many 3's? (6, 9, 12, 15, 30)
<b>5c</b>	10	How many 4's?(8, 12, 16, 20, 40)
<b>5c</b>	10	How many 5s? (10, 15, 20, 25, 30, 50)
<b>5c</b>	10	How many 6s?(12, 30, 60)
<b>5c</b>	10	How many 10s? (20, 30, 40, 50, 60, 70, 80, 90, 100)
	<b>100</b>	
<b>6a</b>	7	Use symbols to represent an unknown number in any position in a division sentence (numbers 0 – 50) $\div$ (numbers 1 – 5) (integer answers) eg $12 \div ? = 4$ $? \div 4 = 3$ $12 \div 3 = ?$
<b>6a</b>	5	(numbers 0 - 10) $\div$ 1
<b>6a</b>	5	(4-digit 1000 multiple) $\div$ 10
<b>6a</b>	5	(4-digit 1000 multiple) $\div$ 100
<b>6a</b>	10	(200, 400, 600, 800, 1000) $\div$ 10
<b>6a</b>	10	Half of (even numbers 60 – 150)
<b>6a</b>	5	Half of (10 multiples from 100 – 200)
<b>6a</b>	5	Half of (2000, 4000, 6000, 8000, 10 000)
<b>6a</b>	3	Divide (100 multiples from 200 – 1000) by 2
<b>6a</b>	7	(3 multiples 0 - 30) $\div$ 3
<b>6a</b>	8	(4 multiples 0 - 40) $\div$ 4
<b>6a</b>	10	(5 multiples 0 - 50) $\div$ 5
<b>6a</b>	10	(0 ,6, 12, 18, 24, 30, 60) $\div$ 6
<b>6a</b>	10	(10 multiples 0 - 200) $\div$ 10
	<b>100</b>	

<b>6b</b>	12	Half of (100 multiples from 200 – 1800)
<b>6b</b>	13	Half of (1000 multiples 1000 - 5000)
<b>6b</b>	15	Use symbols to represent an unknown number in any position in a division sentence (numbers 0 – 60) ÷ (numbers 1 – 6) (integer answers) eg $12 \div ? = 4$ $? \div 4 = 3$ $12 \div 3 = ?$
<b>6b</b>	15	(numbers 0 – 70) ÷ (numbers 0-10) - integer answers
<b>6b</b>	10	How many 6s? (6 multiples 0 - 60)
<b>6b</b>	10	How many 9s? (9, 18, 27, 36, 45, 54, 63, 90)
<b>6b</b>	10	How many 7s? (7 multiples 0 - 70)
<b>6b</b>	10	(4-digit 1000 multiple) ÷ (10 or 100)
	<b>100</b>	
<b>6c</b>	5	(numbers 0 – 50) ÷ 1
<b>6c</b>	10	Half of (10 multiples from 100 – 2000) eg Half of 460
<b>6c</b>	15	Use symbols to represent an unknown number in any position in a division sentence (numbers 0 – 70) ÷ (numbers 1 – 7) (integer answers) eg $12 \div ? = 4$ $? \div 4 = 3$ $12 \div 3 = ?$
<b>6c</b>	25	(numbers 0 – 90) ÷ (numbers 0-10) - integer answers
<b>6c</b>	8	How many 8s? (8 multiples 0 - 80)
<b>6c</b>	7	(3- or 4-digit 10 multiple) ÷ 10
<b>6c</b>	10	(numbers 20 - 1000) ÷ (numbers 3-9) so answer is a 2-digit 10 multiple eg $320 \div 8$ , $450 \div 5$
<b>6c</b>	5	(numbers 1000 - 10 000) ÷ (numbers 3-9) so answer is a 3-digit 100 multiple eg $3200 \div 8$ , $4500 \div 5$
<b>6c</b>	10	(3-digit number) ÷ (numbers 3-9) - integer answer eg $132 \div 4$
<b>6c</b>	5	(4- or 5-digit 100 multiple) ÷ (10 or 100)
	<b>100</b>	
<b>7a</b>	10	(3-digit number) ÷ (numbers 3-9) - integer answer eg $132 \div 4$
<b>7a</b>	5	(numbers 0 – 50) ÷ 1
<b>7a</b>	8	(4- or 5-digit 100 multiple) ÷ (10 or 100)
<b>7a</b>	15	Use symbols to represent an unknown number in any position in a division sentence
<b>7a</b>	8	(numbers 20 - 1000) ÷ (numbers 3-9) so answer is a 2-digit 10 multiple eg $320 \div 8$ , $450 \div 5$
<b>7a</b>	9	(numbers 1000 - 10 000) ÷ (numbers 3-9) so answer is a 3-digit 100 multiple eg $3200 \div 8$ , $4500 \div 5$
<b>7a</b>	9	How many 6s? (6 multiples 0 - 60)
<b>7a</b>	9	How many 7s? (7 multiples 0 - 70)
<b>7a</b>	9	How many 8s? (8 multiples 0 - 80)
<b>7a</b>	9	How many 9s? (9 multiples 0 - 90)
<b>7a</b>	9	(100 multiples 100 - 1000) ÷ 50
	<b>100</b>	

<b>7b</b>	5	(numbers 0 – 100) ÷ 1
<b>7b</b>	10	Use symbols to represent an unknown number in any position in a division sentence (numbers 0 – 100) ÷ (numbers 1 – 10) (integer answers) eg $12 \div ? = 4$ $? \div 4 = 3$ $12 \div 3 = ?$
<b>7b</b>	20	(3-digit number) ÷ (numbers 3-9) - integer answer eg $132 \div 4$
<b>7b</b>	5	Use symbols to represent an unknown number in any position in a division sentence (numbers 0 – 100) ÷ (numbers 1 – 10) (integer answers) eg $12 \div ? = 4$ $? \div 4 = 3$ $12 \div 3 = ?$
<b>7b</b>	10	Half of (10 multiples from 1000 – 10 000) eg Half of 6880
<b>7b</b>	10	A quarter of (40 multiples from 500 – 1000) eg A quarter of 440 (answer a ten multiple)
<b>7b</b>	12	(3-digit 10 multiple) ÷ (2-digit 10 multiple) so answer is a whole number eg $360 \div 90$ , $560 \div 80$
<b>7b</b>	7	(2- or 3-digit 11 multiples) ÷ 11
<b>7b</b>	8	(2- or 3-digit 12 multiples) ÷ 12
<b>7b</b>	5	(100 multiples 100 - 1000) ÷ 50
<b>7b</b>	5	(2-digit odd numbers) ÷ 2 (decimal answer)
	<b>100</b>	
<b>8</b>	10	Half of (10 multiples from 1000 – 10 000) eg Half of 6880
<b>8</b>	10	A quarter of (40 multiples from 500 – 1000) eg A quarter of 440 (answer a ten multiple)
<b>8</b>	5	(3-digit 10 multiple) ÷ (2-digit 10 multiple) so answer is a whole number not greater than 10 eg $360 \div 90$ , $560 \div 80$
<b>8</b>	5	Use symbols in any position in division sentence (3-digit 10 multiple) ÷ (2-digit 10 multiple) so answer is a whole number eg $360 \div 90$ , $560 \div 80$
<b>8</b>	10	(3-digit number) ÷ (numbers 3-9) - integer answer eg $132 \div 4$
<b>8</b>	10	(4-digit 100 multiple) ÷ (3-digit 100 multiple) so answer is a whole number eg $3600 \div 900$ , $5600 \div 800$
<b>8</b>	10	(4-digit 100 multiple) ÷ (2-digit 10 multiple) so answer is a 2-digit 10 multiple eg $3600 \div 90$ , $5600 \div 80$
<b>8</b>	10	(3- digit 11 multiples) ÷ 11
<b>8</b>	10	(3-digit 12 multiples) ÷ 12
<b>8</b>	5	(100 multiples 100 - 1000) ÷ 50
<b>8</b>	5	(100 multiples 100 - 1000) ÷ 25
<b>8</b>	5	(2-digit odd numbers) ÷ 2 (decimal answer)
<b>8</b>	5	(2-digit numbers) ÷ 10 (decimal answer)
	<b>100</b>	
<b>9</b>	9	(3-digit number) ÷ (numbers 3-9) - integer answer eg $132 \div 4$
<b>9</b>	9	(3-digit 10 multiple) ÷ (2-digit 10 multiple) so answer is a whole number eg $360 \div 90$ , $560 \div 80$
<b>9</b>	5	(4-digit 100 multiple) ÷ (3-digit 100 multiple) so answer is a whole number eg $3600 \div 900$ , $5600 \div 800$
<b>9</b>	9	(4-digit 100 multiple) ÷ (2-digit 10 multiple) so answer is a 2-digit 10 multiple eg $3600 \div 90$ , $5600 \div 80$
<b>9</b>	5	Use symbol in any position in division sentence (4-digit 100 multiple) ÷ (2-digit 10 multiple)

- so answer is a 2-digit 10 multiple eg  $3600 \div 90$ ,  $5600 \div 80$
- 9** 8 (5-digit 100 multiple)  $\div$  (3-digit 100 multiple) so answer is a 2-digit 10 multiple eg  $36\ 000 \div 900$ ,  $56\ 000 \div 800$
- 9** 10 (3- or 4-digit 110 multiples)  $\div$  11
- 9** 10 (3- or 4-digit 120 multiples)  $\div$  12
- 9** 10 (3- or 4-digit 50 multiples)  $\div$  50 eg  $650 \div 50$ ,  $6500 \div 50$
- 9** 10 (100 multiples 500 - 5000)  $\div$  25
- 9** 5 (1- or 2-digit integers)  $\div$  0.1
- 9** 10 (5-digit 100 multiple)  $\div$  (3-digit 100 multiple) so answer is a 2-digit 10 multiple eg  $36\ 000 \div 900$ ,  $56\ 000 \div 800$
- 100**
- 10** 5 (3-digit number)  $\div$  (numbers 3-9) - integer answer eg  $132 \div 4$
- 10** 8 Use symbol in any position in division sentence (3-digit 100 multiple)  $\div$  (numbers 3-9) integer answer eg  $132 \div ? = 33$ ,  $? \div 4 = 33$
- 10** 5 (3-digit 10 multiple)  $\div$  (2-digit 10 multiple) so answer is a whole number eg  $360 \div 90$ ,  $560 \div 80$
- 10** 8 Use symbol in any position in division sentence (3-digit 10 multiple)  $\div$  (2-digit 10 multiple)  
so answer is a whole number eg  $360 \div ? = 90$ ,  $? \div 40 = 90$
- 10** 5 (4-digit 100 multiple)  $\div$  (3-digit 100 multiple) so answer is a whole number eg  $3600 \div 900$ ,  $5600 \div 800$
- 10** 5 Use symbol in any position in division sentence (4-digit 100 multiple)  $\div$  (3-digit 10 multiple)  
so answer is a whole number eg  $3600 \div ? = 900$ ,  $? \div 900 = 4$
- 10** 5 (4-digit 100 multiple)  $\div$  (2-digit 10 multiple) so answer is a 2-digit 10 multiple eg  $3600 \div 90$ ,  $5600 \div 80$
- 10** 5 Use symbol in any position in division sentence (4-digit 100 multiple)  $\div$  (2-digit 10 multiple)  
so answer is a 2-digit 10 multiple eg  $3600 \div 90$ ,  $5600 \div 80$
- 10** 8 (5-digit 100 multiple)  $\div$  (3-digit 100 multiple) so answer is a 2-digit 10 multiple eg  $36\ 000 \div 900$ ,  $56\ 000 \div 800$
- 10** 8 (3- or 4-digit 110 multiples)  $\div$  11
- 10** 8 (3- or 4-digit 120 multiples)  $\div$  12
- 10** 10 (3- or 4-digit 50 multiples)  $\div$  50 eg  $650 \div 50$ ,  $6500 \div 50$
- 10** 10 (100 multiples 500 - 5000)  $\div$  25
- 10** 10 (1- or 2-digit integers)  $\div$  0.1
- 100**

## Decimal +/-

Note: All dec nums with no units are written as 0.67 etc but players can enter both answers eg .67 or 0.67

6a	25	Addition of tenths answer less than 1.0 eg $0.2+0.4$
6a	25	1 subtract tenths. eg $1 - 0.4$
6a	25	Add tenths totalling 1 eg $0.6 + ?=1$ , or $.6 + ? = 1$ but not 1.0
6a	25	Subtraction of tenths eg $0.4 - 0.3$
	<b>100</b>	
6b	12	Addition of tenths answer can be $>1.0$ eg $0.8 + 0.4$
6b	12	1.0 subtract tenths. eg $1.0 - 0.4$
6b	12	Questions of type $1.0 - 0.3$ , $1.0 - 0.6$ etc
6b	12	Questions of type $2.6 - 1.3$ , (numbers $<10$ ), no decomposition
6b	10	Add tenths totalling 1 eg $0.6 + ?=1$ or 1.0
6b	10	Add 0.1 to any 1- or 2-digit number. eg $2+0.1$ , $3.4+0.1$ , $0.67+0.1$
6b	10	Number $<10$ , 1 dec pl subtract whole number eg $7.5 - 4$
6b	12	Questions of type $2.4 + 0.3$ , no crossing
6b	10	Questions of type $3.2 + 2.4$ , no crossing
	<b>100</b>	
7a	6	Add 0.01 to any positive integer. eg $6 + 0.01$
7a	6	Add 2 numbers each with 2 dec pl, no crossing boundaries eg $0.42+0.34$
7a	6	Questions of type $2.6 - 1.3$ , no decomposition
7a	6	Whole number subtract tenths eg $4 - 0.3$
7a	5	How many tenths to next whole number eg $3.4 + ? = 4$ (or 4.0)
7a	6	Decimals (2DP) totalling 1 eg $0.45 + ? = 1$ (or 1.0)
7a	6	Subtract 0.1 from number $<10$ with 1 or 2 dec pl, no decomposition eg $3.2 - 0.1$ , $0.25 - 0.1$
7a	6	Subtract 2 dec pl numbers, no decomposition eg $0.34 - 0.21$
7a	6	Number $<10$ , 1 dec pl subtract whole number eg $7.5 - 4$
7a	6	Number $<10$ , 2 dec pl subtract whole number eg $7.54 - 4$
7a	6	Subtract 0.1 from any 2 or 3 digit number (can be W, W/T, W/TH) eg $140 - 0.1$ , $14 - 0.1$ , $11.4 - 0.1$ , $1.14 - 0.1$
7a	6	Decimals (1DP) totalling 10 eg $2.3 + ? = 10$
7a	5	Subtract 0.01 from any number ( $<100$ ) with 2 decimal places. No decomposition eg $12.78 - 0.01$
7a	6	Questions of type $2.4 + .8$ , crossing boundary

7a	6	Addition of nums <10 with 1 dec pl , regrouping OK eg 2.7 +1.8
7a	6	Questions of type 2.0 +0.3 whole number is <10, tenths
7a	6	Questions of type 5+2.4, 2.4 +5 Dec number <10, tenths
	<b>100</b>	
7b	8	Add 0.001 to any number(<10) with 3 decimal places eg 6.807+0.001, 7.569+0.001 (accept 7.57 or 7.570)
7b	8	Subtract 0.01 from any positive integer. eg 6 - 0.01
7b	9	Any 2 digit (w/t) - any 1 or 2 digit, same num dec pl, crossing boundary eg 4.7 - 1.9, 4.3 -0.5 not 4.7 -0.18
7b	9	Any 2 digit subtract any 2 digit eg 4.2-.24, 5.6 - 1.7, 23-.15 etc, including decomposition
7b	9	Any 2 or 3 digit (w/th or th) - any 1 or 2 digit, crossing boundary eg 0.47 - 0.29, 1.32 - 0.95, always include 0
7b	8	Subtract 0.1 from any 3-digit number. No decomposition eg 12.7-0.1, 2.34-0.1, 0.675 - 0.1
7b	8	Add 0.01 to any number with 2 decimal places. number<100 eg 23.78+0.01
7b	9	Any 2 digit subtract any 2 digit eg 4.2-.24, 5.6 - 1.7, 23-.15 etc
7b	8	Addition of whole number and tenths eg 2 + 0.5 also 2.0 + 0.5
7b	8	Subtract whole number from any 1 or 2 dec pl number (<100), decomposition OK eg 21.4 -17
7b	8	Questions of type 2.7 +1.8, 2.8+ 0.7, with regrouping in tenths place
7b	8	Questions of type 7.5 +4.2, with regrouping in units place
	<b>100</b>	
8a	9	Subtract 0.001 from any number with 3 dec pl eg 4.502 - 0.001
8a	9	Add 0.001 to any number with 3 dec pl eg 4.502 + 0.001
8a	9	Decimals (2DP) totalling 10 eg 2.67 + ? = 10
8a	9	Decimals (3DP) totalling 1 eg 0.678 + ? = 1
8a	9	Make next whole number from number with units, tenths and hundredths eg 2.74 + ? = 3.0
8a	9	Add 0.1 to any 3-digit number.
8a	10	Addition of nums <10 with 1 dec pl , regrouping OK eg 2.7 +1.8
8a	9	Add whole num (<20) to any number (max 4 digits, 1,2 or 3 dec pl) eg 114.3+17, 11.43=17, 1.143 +17
8a	9	Subtract whole number (<20) from any number (max 4 digits with 1,2 or 3 dec pl) eg 114.3 -17, 11.43 -7, 10.685 -4
8a	9	Questions of type 7.5 +3.7, Nums <10, 1 dec pl, regrouping allowed
8a	9	Questions of type 5.6+2.4, answer a whole number. Accept 8 or 8.0
	<b>100</b>	

<b>8b</b>	20	Subtract 0.01 from any number (<1000) with 1 dec pl eg 4.5 - 0.01
<b>8b</b>	20	Subtract numbers (<30) with 3 dec pl, no decomposition eg 14.786 - 12.654
<b>8b</b>	20	Any 2 digit subtract any 2 digit eg 4.2-.24, 5.6 - 1.7, 23-.15 etc
<b>8b</b>	20	Subtract 0.001 from any number (<100) with 2 dec pl eg 4.56 - 0.001, 17.86 - 0.001
<b>8b</b>	20	Subtract whole number from any 1 or 2 dec pl number (<1000) eg 17.45 -11, 147.33 - 139
	<b>100</b>	
<b>9</b>	14	Make next whole number from number (<10) with 3 dec pl) eg 2.345+? = 3
<b>9</b>	13	Subtract numbers (<30) with 3 dec pl, no decomposition eg 14.786 - 12.654
<b>9</b>	14	Decimals (3DP) totalling 10 eg 8.126 + ? = 10
<b>9</b>	15	Add any 2 or 3 digit number to any 2 digit number, at least one dec pl in at least one of numbers eg 0.12+17, 1.7 +1.2, 0.17 +0.123 etc
<b>9</b>	15	1,2 or 3 digits. Dec point anywhere eg .4+32, 4.5 +.24, 1.23+12.3 etc
<b>9</b>	14	Addition: 4 digits with 1 or 2 dec places eg 12.35 +145.8
<b>9</b>	15	Subtraction: 4 digits 1 or 2 dec places eg 34.56 - 23.7
	<b>100</b>	
<b>10</b>	25	3 digit subtract (1,2 or 3 digit), including decomposition eg 54.6 -12.9
<b>10</b>	25	Add any 3 digit to any 1,2 or 3 digit, at least 1 dec pl in at least one number eg 123+0.7, 1.23+7.5, 123+0.75, 12.3 + 0.758
<b>10</b>	25	(1 or 2 digits with 1,2 or 3 dec pl) + (1 or 2 digits with 1 or 2 dec pl)
<b>10</b>	25	(1 or 2 digits with 1,2 or 3 dec pl) - (1 or 2 digits with 1 or 2 dec pl)
	<b>100</b>	

## Decimal x/÷

Note: All dec nums with no units are written as 0.67 etc but players can enter both answers eg .67 or 0.67

6a	25	Divide odd numbers by 2, up to 10
6a	25	Divide 1 dec pl "even" nums by 2 eg 0.6/2
6a	25	Multiply tenths by 2, no crossing boundary eg 0.3x2
6a	25	Multiply tenths by 10 eg 0.4 x10 or 10 x 0.4
	<b>100</b>	
6b	20	Divide odd numbers by 2, up to 20
6b	20	Multiply tenths by 2 or 3, with crossing of boundary eg 0.7x2, 0.6x3
6b	20	Divide 2 digit decimal numbers by 2, each digit divisible by 2 eg 4.8 divided by 2
6b	20	Divide whole number (< 10) by 10 eg 4/10
6b	20	Multiply tenths by 100, eg 0.6 x100 or 100 x 0.6
	<b>100</b>	
7a	20	Divide odd numbers by 2, up to 50
7a	20	Divide 2 digit decimal numbers by 2, digits can be odd or even eg 4.8 divided by 2, 4.5 divided by 2
7a	20	Multiply any decimal number(<100) with 1 decimal place by 10. eg 56.4
7a	20	Divide whole number (< 100) by 10 eg 43/10
7a	20	Multiply a 2 digit whole number by 0.1 eg 54 x 0.1
	<b>100</b>	
7b	6	Half of number 1-100
7b	8	Doubles of all 2-digit numbers including decimal numbers with tenths and decimal hundredths.
7b	8	Multiply a decimal tenth by any single-digit number (0.6x9)
7b	8	Multiply any decimal number(<100) with 1 decimal place by 100.
7b	8	Multiply any decimal number (<100) with 2 decimal places by 10.
7b	8	Multiply whole numbers (<10) by 0.1 eg 6x0.1
7b	8	Multiply whole numbers (<10) by 0.01
7b	8	Multiply decimal numbers (<100) by 0.1
7b	8	Divide whole number (< 10) by 100 eg 4/100
7b	8	Divide whole number (< 100) by 100 eg 43/100
7b	8	Multiply a 3 digit whole number by 0.1 eg 764x0.1

<b>7b</b>	7	Multiply a 3 digit whole number by 0.01 eg 516 x 0.01
<b>7b</b>	7	Multiply a 4 digit whole number by 0.1 eg 4832 x 0.1
	<b>100</b>	
<b>8a</b>	15	All tenths times tables e.g. 0.3 x 0.4
<b>8a</b>	15	Multiply single digit whole number by decimal tenth eg 9x0.6
<b>8a</b>	12	Multiply any decimal number (<100) with 2 decimal places by 100.
<b>8a</b>	10	Divide whole numbers (<10) by 0.1
<b>8a</b>	12	Multiply whole numbers (<100) by 0.01
<b>8a</b>	12	(0.01 to 0.09)x(1 to 9) eg 0.07 x5, also 5 x 0.07
<b>8a</b>	12	Multiply a 4 digit whole number by 0.01 eg 1865x0.01
<b>8a</b>	12	Multiply a 4 digit whole number by 0.001 eg 7483x0.001
	<b>100</b>	
<b>8b</b>	20	Multiply a 2-digit number (including a decimal) by any single digit number
<b>8b</b>	20	Multiply any decimal number(<10) with 1 decimal place by whole number <10 eg 7.6*4
<b>8b</b>	20	Divide number (<10) with 1 dec place by 5 eg 4.3 divided by 5
<b>8b</b>	20	Divide whole number <100 by 0.1 eg 9div0.1, 56 div 0.1
<b>8b</b>	20	Multiply a 2 digit whole number by 0.01 eg 76x0.01
	<b>100</b>	
<b>9</b>	10	Divide whole numbers (<10) by 0.01
<b>9</b>	12	Multiply decimal numbers (<100) by 0.01
<b>9</b>	15	Mixed tenths and hundredths times tables (0.9 x 0.04)
<b>9</b>	12	Divide decimal numbers (<100) by 0.1
<b>9</b>	13	Multiply 2 digit decimal numbers by 5
<b>9</b>	13	Multiply 2 digit decimal numbers by 2
<b>9</b>	13	Multiply 2 digit decimal numbers by 4
<b>9</b>	12	Multiply a 3 digit whole number by 0.001 eg 476x0.001
	<b>100</b>	
<b>10</b>	50	Divide decimal numbers ( up to 2 dec pl , but less than 100) by 0.01 eg 12.43 / 0.01
<b>10</b>	50	Multiply 2 digit decimal numbers by any whole number in range 2 - 9
	<b>100</b>	

## Fractions

<b>4</b>	50	Half (the word) of any even whole number up to 20
<b>4</b>	50	1/2 (the symbol) of any even whole number up to 20
	<b>100</b>	
<b>5</b>	50	Half (the word) of any even whole number up to 50
<b>5</b>	50	1/2 (the symbol) of any even whole number up to 50
	<b>100</b>	
<b>6a</b>	30	Half (the word) of any even whole number up to 100
<b>6a</b>	30	1/2 (the symbol) of any even whole number up to 100
<b>6a</b>	40	Equivalent fractions involving 1/2. up to denom of 20 eg (2/4 = ?/2) (1/2 = ?/8)
	<b>100</b>	
<b>6b</b>	20	Equivalent fractions involving 1/5. up to denom of 50 eg (20/50 = ?/5) (4/5 = ?/20)
<b>6b</b>	60	Fractions of nums up to 45. Use 1/2, 1/3, 1/4, 1/5, numerator always 1. Whole number answer. eg 1/5 of 25
<b>6b</b>	20	Equivalent fractions involving 1/4 up to denom of 40
	<b>100</b>	
<b>7a</b>	40	Fractions of nums up to 30. Use 1/2s, 1/3s, 1/4s, 1/5s. NB Includes unit and non unit fractions ie 1/5 and 3/5 eg 3/5 of 25
<b>7a</b>	20	Equivalent fractions. Denom of 100. eg 75/100 = 3/?, 60/100 = ?/5
<b>7a</b>	20	Fractions times (x) nums up to 50. Use 1/2, 1/3s, 1/4s, 1/5s NB Includes unit and non unit fractions ie 1/5 and 3/5 eg 3/5 x 25
<b>7a</b>	20	Number times fraction up to 50. Use 1/2, 1/3s, 1/4s, 1/5s eg 25 x 3/5
	<b>100</b>	
<b>7b</b>	12	Quarters (word) numbers within the number facts range (to 10 times) exact answers
<b>7b</b>	13	1/4 s (symbol) of numbers within the number facts range (to 10 times). Exact answer.
<b>7b</b>	12	Thirds (word) of numbers within the number facts range (to 10 times). Exact answer
<b>7b</b>	13	1/3 s (symbol) of numbers within the number facts range (to 10 times). Exact answer
<b>7b</b>	12	Fifths (word) of numbers within the number facts range (to 10 times). Exact answer.
<b>7b</b>	13	1/5 s (symbol) of numbers within the number facts range (to 10 times). Exact answer.
<b>7b</b>	12	Tenths (word) of numbers within the number facts range (to 10 times). Exact answer.
<b>7b</b>	13	1/10 s (symbol) of numbers within the number facts range (to 10 times). Exact answer.
	<b>100</b>	

<b>8</b>	30	$1/6, 1/7, 1/8, 1/9$ of numbers to 100. Exact answer. eg $1/6 \times 42$
<b>8</b>	30	$1/6$ s, $1/7$ s, $1/8$ s, $1/9$ s of numbers to 100. Exact answer. eg $5/6 \times 36$
<b>8</b>	20	Divide whole numbers (1 to 10) by $1/2$
<b>8</b>	20	Divide whole numbers (1 to 10) by $1/3, 1/4, 1/5$
	<b>100</b>	

## Percentages

<b>6a</b>	100	Change $\frac{1}{2}$ , $\frac{1}{10}$ , $\frac{1}{4}$ , $\frac{3}{4}$ , $\frac{1}{5}$ to % eg $\frac{1}{4} = ?\%$
	<b>100</b>	
<b>6b</b>	80	Change $\frac{1}{2}$ , $\frac{1}{4}$ , $\frac{3}{4}$ , $\frac{1}{5}$ , $\frac{2}{5}$ , $\frac{3}{5}$ , $\frac{4}{5}$ and all tenths to % eg $\frac{3}{5} = ?\%$ , $\frac{3}{10} = ?\%$
<b>6b</b>	20	50% of even numbers to 50
	<b>100</b>	
<b>7a</b>	50	Change (0.1 - 0.9) to % eg $0.3 = ?\%$
<b>7a</b>	50	50% of even numbers to 100
	<b>100</b>	
<b>7b</b>	20	Change (0.01 - 0.09) to % eg $0.03 = ?\%$
<b>7b</b>	20	10% of multiples of 10 to 100
<b>7b</b>	20	25% of multiples of 4 to 100
<b>7b</b>	20	20% of multiples of 5 to 100
<b>7b</b>	20	33 $\frac{1}{3}\%$ of multiples of 3 to 100
	<b>100</b>	
<b>8</b>	50	Change (0.01 - 0.99) to % . (Note 0.20 should be displayed as 0.2) eg $0.03 = ?\%$
<b>8</b>	25	75% of multiples of 4 to 100
<b>8</b>	25	5% of multiples of 20 to 100
	<b>100</b>	
<b>9</b>	25	12 $\frac{1}{2}\%$ of multiples of 8 to 100
<b>9</b>	60	40%,60%,80% of multiples of 5 to 100
<b>9</b>	15	Change whole numbers (1-9) to percentage eg $2 = ?\%$
	<b>100</b>	

## Squares and Square Roots

6	50	17. Squares of all numbers from 1-10
6	50	$\sqrt{1} - \sqrt{100}$
	<b>100</b>	
7	50	21. Squares of all numbers 1 –12
7	50	$\sqrt{1} - \sqrt{144}$
	<b>100</b>	
8	37	Squares of all numbers 1- 20
8	13	23. Squares of ten multiples 0-100
8	50	$\sqrt{1} - \sqrt{400}$
	<b>100</b>	
9	25	squares of numbers 1- 31
9	25	22. Squares of tenths 0.1-0.9
9	12	$\sqrt{1} - \sqrt{400}$
9	38	$\sqrt{100} - \sqrt{961}$
	<b>100</b>	

## Powers

7	50	Squares and cubes of all numbers 1 - 5
7	50	Powers of 2 up to $2^5$ , ie $2^0 - 2^5$
	<b>100</b>	
8	34	Squares and cubes of all numbers 1 - 5
8	33	Powers of 2 up to $2^{10}$ , ie $2^0 - 2^{10}$
8	33	Powers $1^0 - 10^0$
	<b>100</b>	
9	17	Squares and cubes of all numbers 1 - 6
9	17	Powers of 2 up to $2^{10}$ , ie $2^0 - 2^{10}$
9	16	Powers $1^0 - 10^0$
9	25	Powers of 3 up to $3^5$ , ie $3^0 - 3^5$
9	25	Powers of 10 up to $10^6$
	<b>100</b>	
10	12	Squares and cubes of all numbers 1 - 6
10	12	Powers of 2 up to $2^{10}$ , ie $2^0 - 2^{10}$
10	12	Powers $1^0 - 10^0$
10	12	Powers of 3 up to $3^5$ , ie $3^0 - 3^5$
10	12	Powers of 10 up to $10^6$
10	20	Powers of 5 up to $5^4$
10	20	Powers $1^4 - 3^4$
	<b>100</b>	

## Mixed Tables

**3a** 100 2 times, 2x3 and 3x2  
**100**

**3b** 50 1 times  
**3b** 50 2 times  
**100**

**3c** 20 1 times  
**3c** 40 2 times  
**3c** 40 10 times  
**100**

**4a** 10 0 times  
**4a** 10 1 times  
**4a** 25 2 times  
**4a** 25 10 times  
**4a** 30 5 times  
**100**

**4b** 8 0 times  
**4b** 8 1 times  
**4b** 18 2 times  
**4b** 16 10 times  
**4b** 20 5 times  
**4b** 30 4 times  
**100**

<b>5a</b>	5	0 times
<b>5a</b>	5	1 times
<b>5a</b>	10	2 times
<b>5a</b>	10	10 times
<b>5a</b>	20	5 times
<b>5a</b>	20	4 times
<b>5a</b>	30	3 times
	<b>100</b>	

<b>5b</b>	3	0 times
<b>5b</b>	4	1 times
<b>5b</b>	7	2 times
<b>5b</b>	7	10 times
<b>5b</b>	13	5 times
<b>5b</b>	16	4 times
<b>5b</b>	20	3 times
<b>5b</b>	30	6 times
	<b>100</b>	

<b>6a</b>	3	0 times
<b>6a</b>	3	1 times
<b>6a</b>	6	2 times
<b>6a</b>	4	10 times
<b>6a</b>	7	5 times
<b>6a</b>	14	4 times
<b>6a</b>	15	3 times
<b>6a</b>	20	6 times
<b>6a</b>	28	8 times
	<b>100</b>	

6b	1	0 times
6b	1	1 times
6b	4	2 times
6b	4	10 times
6b	5	5 times
6b	5	4 times
6b	8	3 times
6b	12	6 times
6b	20	8 times
6b	20	7 times
6b	20	9 times
	<b>100</b>	

7	1	0 times
7	1	1 times
7	4	2 times
7	3	10 times
7	4	5 times
7	7	4 times
7	7	3 times
7	9	6 times
7	12	8 times
7	12	7 times
7	12	9 times
7	14	11 times
7	14	12 times
	<b>100</b>	

5a	5	0 times
5a	5	1 times
5a	10	2 times
5a	10	10 times
5a	20	5 times
5a	20	4 times
5a	30	3 times
	<b>100</b>	

5b	3	0 times
5b	4	1 times
5b	7	2 times
5b	7	10 times
5b	10	5 times
5b	10	4 times
5b	10	3 times
	<b>100</b>	

6b	1	0 times
6b	1	1 times
6b	4	2 times
6b	4	10 times
6b	5	5 times
6b	5	4 times
6b	8	3 times
6b	12	6 times
6b	20	8 times

6b	20	7 times
6b	20	9 times
	<b>100</b>	

## Directed Numbers (Operations with Integers)

<b>7a</b>	35	$A + B$ where A,B are integers in range -10 to 10
<b>7a</b>	35	$A - B$ where A is integer in range -10 to 10, B is 1 to 10
<b>7a</b>	30	$A(B)$ A is integer 1 to 5, B is -5 to 5
	<b>100</b>	
<b>7b</b>	25	$A - B$ where A is integer in range -10 to 10, B is -10 to 10
<b>7b</b>	50	$A(B)$ A is integer -5 to 5, B is -10 to 10
<b>7b</b>	25	$A + B$ where A,B are integers in range -15 to 15
	<b>100</b>	
<b>8a</b>	30	$A/B$ (as fraction) where A,B are integers, B (-5 to 5) A is +/- multiple of B up to 100
<b>8a</b>	30	A divided by B where A,B are integers, B (-5 to 5) A is <100 and +/- multiple of B
<b>8a</b>	20	$A(B)$ A is integer -5 to 5, B is -10 to 10
<b>8a</b>	20	$(A)B$ , where A,B are integers in range -6 to 6
	<b>100</b>	
<b>8b</b>	35	$A + B$ where A,B are integers in range -20 to 20
<b>8b</b>	35	$A - B$ where A is integer in range -20 to 20, B is 1 to 20
	<b>100</b>	
<b>9</b>	50	$A - B$ where A is integer in range -20 to 20, B is -20 to 20
<b>9</b>	10	$A(B)$ A is integer -10 to 10, B is -10 to 10
<b>9</b>	10	$(A)B$ , where A,B are integers in range -10 to 10
<b>9</b>	10	$A \times B$ where A,B are integers in range -10 to 10
<b>9</b>	10	$A/B$ (as fraction) where A,B are integers, B (-10 to 10) A is +/- multiple of B up to 100
<b>9</b>	10	A divided by B where A,B are integers, B (-10 to 10) A is +/- multiple of B up to 100
	<b>100</b>	
<b>10</b>	50	$A + B$ where A,B are integers in range -100 to 100
<b>10</b>	50	$A - B$ where A is integer in range -100 to 100, B is -100 to 100
	<b>100</b>	

## REVISION MATRICES

### Addition

Total

	1a	1b	2a	2b	3a	3b	4a	4b	5a	5b	6	7	8	9	10				
1a	100																		100
1b		100																	100
2a			100																100
2b				100															100
3a					100														100
3b						100													100
4a							100												100
4b							20	80											100
5a							10	20	70										100
5b							8	12	30	50									100
6							10	10	10	20	50								100
7							5	7	10	14	24	40							100
8							7	8	10	12	12	15	36						100
9							5	5	11	11	11	11	16	30					100
10							5	5	5	10	10	10	10	15	30				100

## Subtraction

Total

	1	2	3	4	5	6	7	8	9	10										
1	100																			100
2		100																		100
3		40	60																	100
4		20	25	55																100
5		10	20	20	50															100
6		5	15	15	25	40														100
7			5	15	15	25	40													100
8			5	5	15	15	20	40												100
9			5	5	10	10	10	20	40											100
10				5	5	10	10	10	20	40										100

## Squares and Square roots

Total

	6	7	8	9																
6	100																			100
7		100																		100
8			100																	100
9				100																100

## Powers

Total

	7	8	9	10																
7	100																			100
8		100																		100
9			100																	100
10				100																100

### Decimal +/-

Total

	6a	6b	7a	7b	8a	8b	9	10											
6a	100																		100
6b	40	60																	100
7a	15	35	50																100
7b	10	20	25	45															100
8a	10	15	18	24	33														100
8b	5	10	15	15	23	32													100
9	5	8	10	13	15	19	30												100
10	2	5	9	10	13	13	18	30											100

### Decimal x/÷

Total

	6a	6b	7a	7b	8a	8b	9	10											
6a	100																		100
6b	40	60																	100
7a	15	35	50																100
7b	10	20	25	45															100
8a	10	15	18	24	33														100
8b	5	10	15	15	23	32													100
9	5	8	10	13	15	19	30												100
10	2	5	9	10	13	13	18	30											100

## Tables

Total

	3a	3b	3c	4a	4b	5a	5b	6a	6b	7											
3a	100																			100	
3b		100																			100
3c			100																		100
4a				100																	100
4b					100																100
5a						100															100
5b							100														100
6a								100													100
6b									100												100
7										100											100

## Directed Numbers

Total

	7a	7b	8a	8b	9	10																
7a	100																					100
7b	50	50																				100
8a	40	40	20																			100
8b	30	25	20	25																		100
9	18	20	16	20	26																	100
10	13	15	12	15	25	20																100

## Multiplication Extension

Total

	3	4	5a	5b	5c	6a	6b	6c	7a	7b	8	9	10					
3	100																	100
4		100																100
5a			100															100
5b				100														100
5c					100													100
6a						100												100
6b							100											100
6c								100										100
7a									100									100
7b										100								100
8											100							100
9												100						100
10													100					100

## Division Extension

Total

	4	5a	5b	5c	6a	6b	6c	7a	7b	8	9	10						
4	100																	100
5a		100																100
5b			100															100
5c				100														100
6a					100													100
6b						100												100
6c							100											100
7a								100										100
7b									100									100
8										100								100
9											100							100
10												100						100

## Counting

Total

	1a	1b	2	3a	3b	3c	4a	4b	5a	5b	6	7a	7b	8	9			
1a	100																	100
1b		100																100
2			100															100
3a				100														100
3b					100													100
3c						100												100
4a							100											100
4b								100										100
5a								35	65									100
5b								20	40	40								100
6								4	8	8	80							100
7a								4	8	8	30	50						100
7b								3	6	7	10	24	50					100
8								2	4	5	9	15	35	30				100
9								2	3	4	6	7	8	10	60			100

## Fractions

Total

	4	5	6a	6b	7a	7b	8											
4	100																	100
5		100																100
6a			100															100
6b			20	80														100
7a			15	15	70													100
7b			5	10	15	70												100
8			5	10	15	30	40											100

**Percentages**

**Total**

	<b>6a</b>	<b>6b</b>	<b>7a</b>	<b>7b</b>	<b>8</b>	<b>9</b>													
<b>6a</b>	100																		100
<b>6b</b>		100																	100
<b>7a</b>		50	50																100
<b>7b</b>		20	20	60															100
<b>8</b>		10	10	50	30														100
<b>9</b>		10	10	30	25	25													100