Mark scheme   UNIT 1

This test is divided into non-calculator (30 minutes) and calculator (20 minutes) sections which can be delivered separately.

The following marks are awarded for each question.

B	Unconditional accuracy mark
M	Method mark – the correct method must be shown but there may be an arithmetic error; the sight of the value given in brackets implies the award of the method mark
A	Accuracy mark – unless the question specifies that working **must** be shown, then the sight of the correct answer implies the award of full marks (unless the answer clearly comes from incorrect working)
C	Communication mark
P	Process mark – to show correct process for problem solving. Any other process of a similar standard to achieve an accurate result is acceptable to achieve this mark
FT	Incorrect values may be **followed through** from one step to the next, **provided** that the correct method is seen in each step and the only errors are arithmetic. This is shown in mark schemes by putting a number in inverted commas
OE	Or Equivalent answer mark

Non-Calculator			
Q	**Answer**	**Mark**	**Comment**
1a	−15	B1	B1
1b	24	B1	accept +24
1c	9	B1	accept +9
3	1, 2, 4, 8, 16	B2	B1 for four correct and none incorrect or all five correct with not more than one incorrect
5a	6000	B1	
5b	70	B1	

Q	Answer	Mark	Comment
7	8 and 9	P1	for 7 and 8 or 9 and 10 or $\sqrt{64} = 8$ or $\sqrt{81} = 9$ or $8^2 = 64$ or $9^2 = 81$
		A1	
9	10	M1	correct numerator of 10×4
		M1	correct denominator of $8 - 4$
		A1	
11a	2.016	B1	
11b	28	B1	
		A1	

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Mark scheme   UNIT 1

📇 Calculator			
Q	**Answer**	**Mark**	**Comment**
13a	7 400 000	B1	
13b	63.52 million(s)	B1	
15	No with reason	P1	any example of 2 + a prime, or at least three examples of adding two primes
		C1	no, with explanation; e.g. 2 + 5 = 7, which is not even
17	three apples and two oranges	P1	for listing at least three multiples of 27 and at least two multiples of 36
		A1	
19a	1.98539...	M1	for numerator of 15.3454(3413) or denominator of 7.72916(5544)
		A1	
19b	1.99	B1	FT their answer to part **(a)** provided they have at least four digits in their answer

Non-Calculator			
Question	**Topic**	**Step**	**Mark**
1a	Multiply and divide negative integers by a positive number	4th	1
1b	Multiply and divide negative integers by a negative number	4th	1
1c	Multiply and divide negative integers by a negative number	4th	1
3	Determine factors and multiples of numbers by listing	3rd	2
5a	Use appropriate strategies to multiply and divide mentally, including by multiples of 10, 100 and 1000	3rd	1
5b	Use appropriate strategies to multiply and divide mentally, including by multiples of 10, 100 and 1000	3rd	1
7	Be able to estimate square roots of non-square numbers less than 100	5th	2
9	Be able to estimate answers to calculations involving 2 or more operations and BODMAS	5th	3
10a	Use the laws of indices to multiply and divide numbers written in index notation	7th	1
10b	Use the laws of indices for a number written in index form raised to a power e.g. $(3^2)^4$	8th	1

11a	Use one calculation to find the answer to another	6th	1
11b	Use one calculation to find the answer to another	6th	1

▦	**Calculator**		
13a	Read, write, order and compare numbers up to $10\,000\,000$ and determine the value of each digit. Example: $7\,233\,563$, $3\,811\,642$, $6\,582\,684$	2nd	1
13b	Read, write, order and compare numbers up to $10\,000\,000$ and determine the value of each digit. Example: $7\,233\,563$, $3\,811\,642$, $6\,582\,684$	2nd	1
15	Identify numbers with exactly 2 factors (primes)	4th	2
17	Apply systematic listing strategies	5th	2
19a	Use the square, cube and power keys on a calculator. Use an extended range of calculator functions, including $+$, $-$, x, x^2, $\sqrt{x}$, memory, xy, $x\dfrac{1}{y}$, brackets	6th	2
19b	Round numbers to significant figures	4th	1