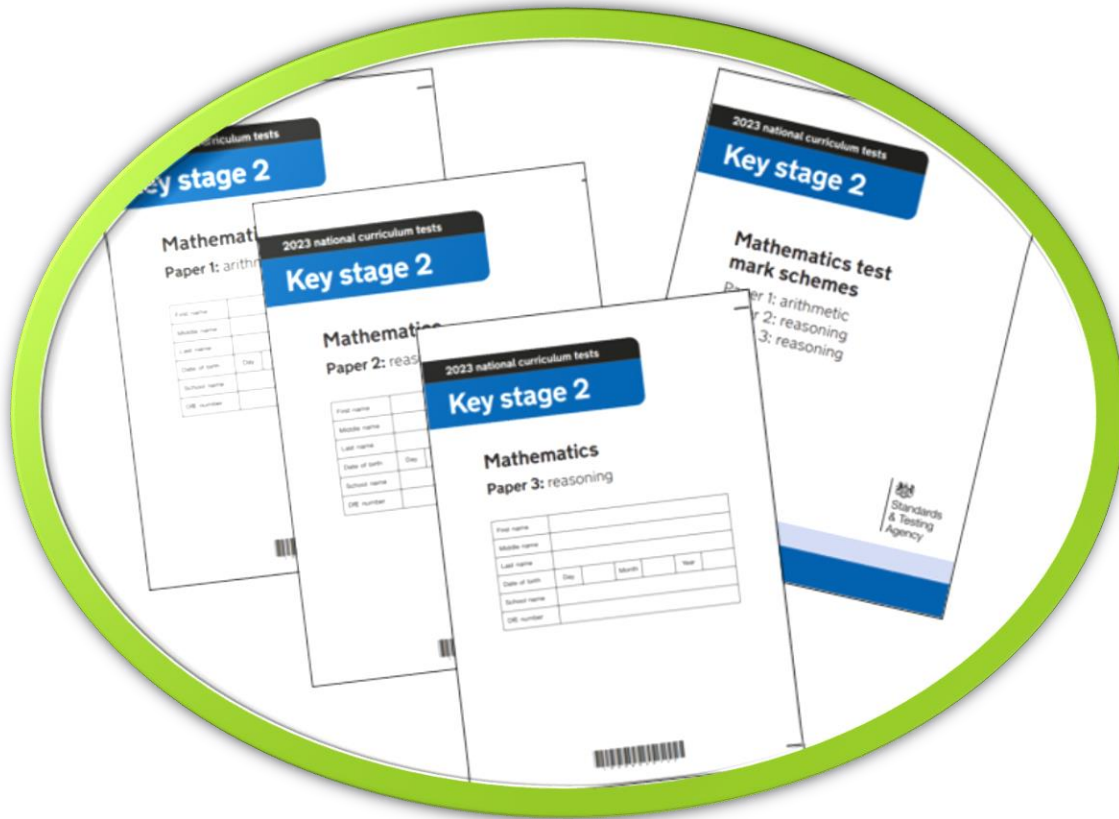


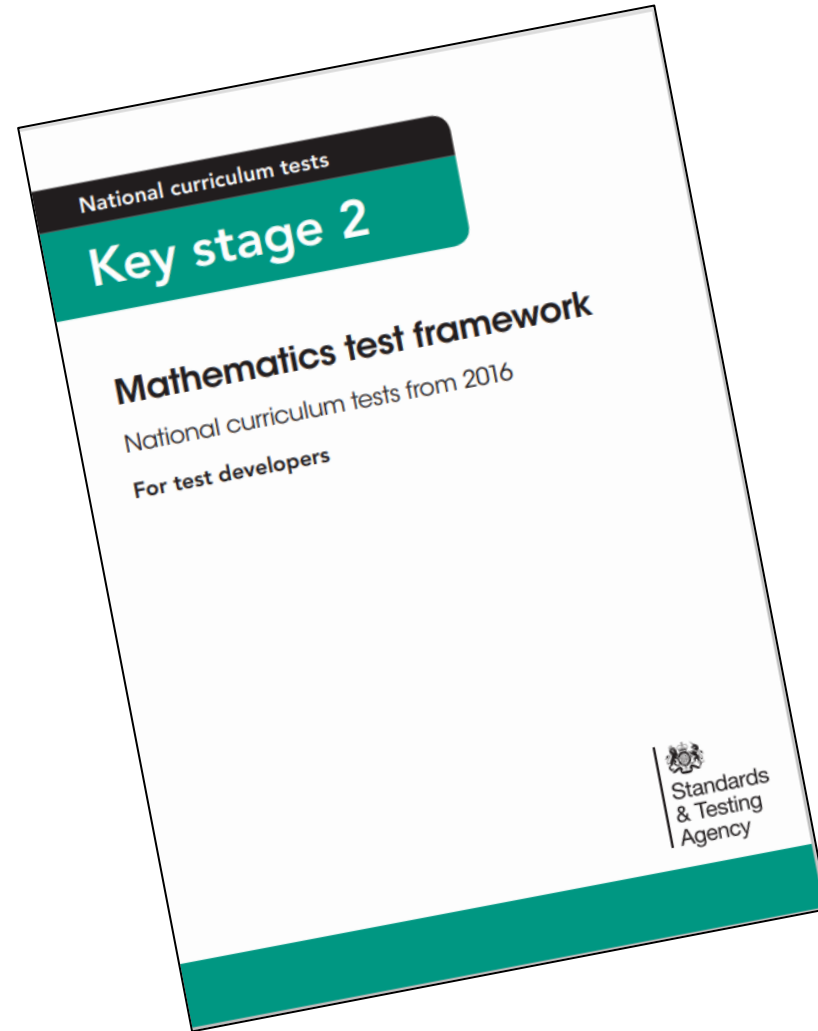
KS2 Mathematics Test Analysis



ATM/MA Primary Group
30th September 2023

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@rosemkeating

Key Stage 2 Mathematics Test Framework



Strand	Substrand	Content domain reference		
Number and place value	counting (in multiples)	Algebra	missing number problems expressed in algebra	A1
	read, write, order and compare numbers		simple formulae expressed in words	A2
	place value; roman numerals		generate and describe linear number sequences	A3
			number sentences involving two unknowns	A4
Addition, subtraction, multiplication and division (calculations)	add / subtract mentally	Measurement	compare, describe and order measures	M1
	add / subtract using written methods		estimate, measure and read scales	M2
	estimate, use inverses and check		money	M3
	add / subtract to solve problems		telling time, ordering time, duration and units of time	M4
	convert between metric units		M5	
	convert metric / imperial		M6	
Fractions, decimals and percentages	recognise, find, write, name and represent equivalent fractions	Geometry – properties of shapes	recognise and name common shapes	G1
	comparing and ordering fractions		describe properties and classify shapes	G2
	add / subtract fractions		draw and make shapes and relate 2-D to 3-D shapes (including nets)	G3
	multiply / divide fractions		angles – measuring and properties	G4
	fractions / decimals equivalence	Geometry – position and direction	patterns	P1
	rounding decimals		describe position, direction and movement	P2
	compare and order decimals		co-ordinates	P3
	multiply / divide decimals	Statistics	interpret and represent data	S1
	solve problems involving data		S2	
	mean average		S3	
Ratio and proportion	relative sizes, similarity			
	use of percentages for comparison			
	scale factors			
	unequal sharing and grouping			

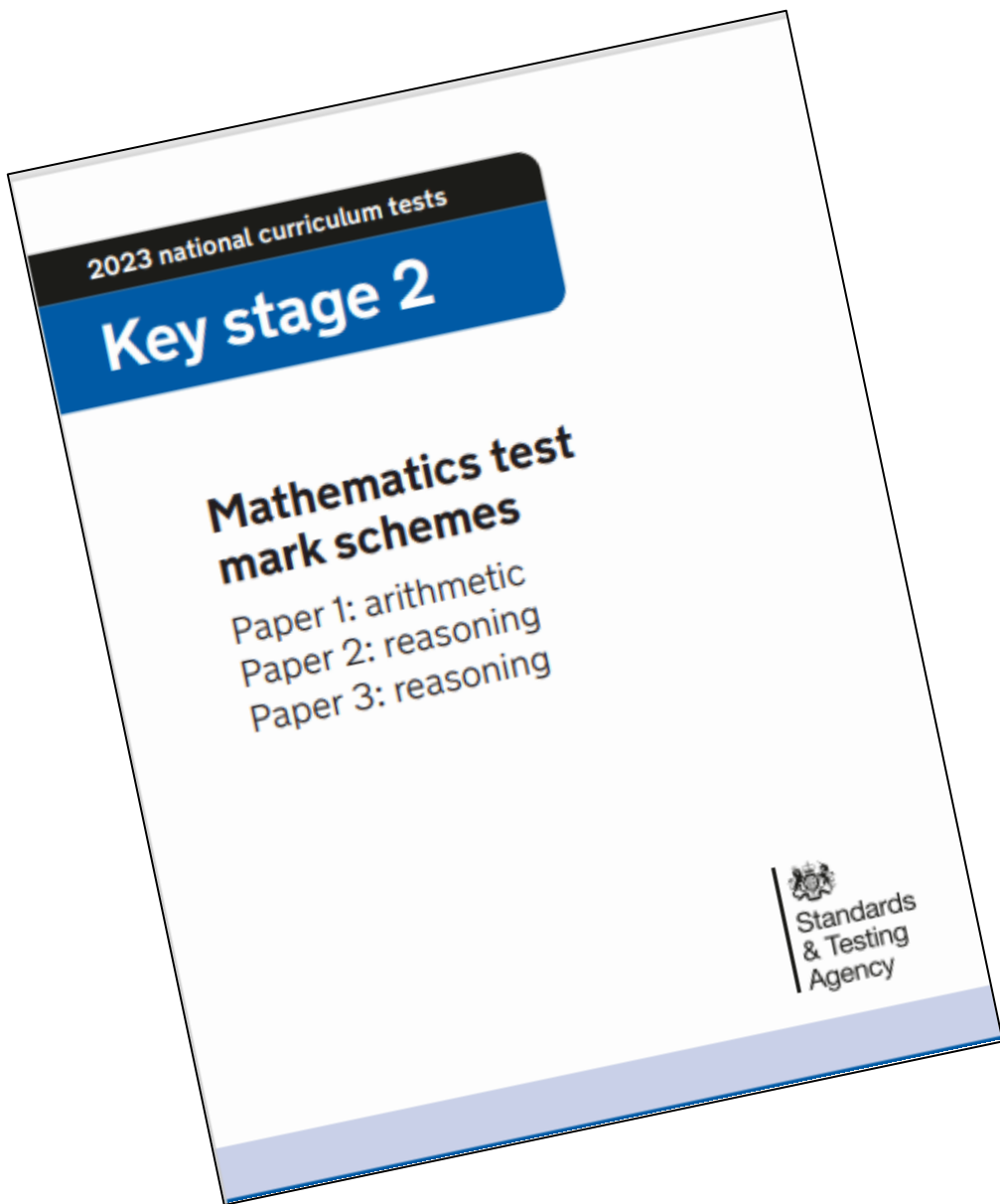


Table 1: content domain coverage of the 2016 key stage 2 mathematics test

Paper 1: arithmetic		Paper 2: reasoning		Paper 3: reasoning	
Qu.	Content domain reference	Qu.	Content domain reference	Qu.	Content domain reference
1	3N2b	1a	3N2a	1	3C1
2	3C2	1b	3N2a	2a	6N5
3	4C6b	2	5N2	2b	6N5
4	3C1	3	3C2	3	4M4b
5	3C2	4a	4S1	4a	6A2
6	3C7	4b	5S1	4b	6A2
7	5C2	5	5C5c	5	5F8
8	3C1	6	4G2c	6	4F10b
9	3C7	7a	6F2	7a	4G4
10	4C7	7b	6F2	7b	4G4
11	3C7	8	5F10	8	6C8
12	5C6a	9	3M9a	9a	5S1
13	5C6b	10	3F2	9b	5S1
14	5F8	11	5M9c	10	5M8
15	5C7b	12a	6A2	11	6C7a
16	5F8	12b	6A2	12	4P2
17	5F8	13	6R1	13	5F10
18	5C2	14	6C5	14a	6M5
19	6C9	15	5M5	14b	6M5
20	6F9a	16a	6N2	15	5N4
21	4F8	16b	6N2	16	6R4
22	4C6b	17a	6G4b	17	6M7b
23	5C7a	17b	6G4a	18	6G2a
24	4F4	18	6C8	19	6N6
25	6R2	19	6C8	20	5F10
26	6F9b	20	6P2	21	6C8
27	5F4				
28	6C7b				
29	6R2				
30	6C7a				
31	6F4				
32	6C7b				
33	6F5b				
34	5F5				
35	6F4				
36	6C9				

Strands

N	Number
M	Measures
G	Geometry
S	Statistics
A	Algebra

Substrands

AS	Addition & Subtraction
MD	Multiplication & Division
D	Decimals
F	Fractions
P	Percentages
Ti	Time
PV	Place Value
T	Transformations
S	Statistics
Seq	Sequences
A&S	Angles & Shape Properties
RP	Ration & Proportion
Sub	Substitution
E	Equations
M	Measurements

Question Level Analysis Spreadsheets

2016 KS2 Mathematics National Curriculum Tests						
Question Level Analysis						
Paper	Quest	p	Mark val	Year Gro	Strat	Objective
KS22016MATHS1	1		1	3	N	Find 10 or 100 more or less than a given number. Add numbers mentally including a three digit number and hundreds.
KS22016MATHS1	10		1	4	N	Multiply three-digit number by a one-digit number.
KS22016MATHS1	25		1	5 & 6	N	Divide whole numbers by 10, 100 and 1000. Solve problems involving the calculation of percentages.

2017 KS2 Mathematics National Curriculum Tests						
Question Level Analysis						
Paper	Quest	p	Mark avail	Year Gro	Strat	Objective
KS22016MATHS1	11		1	4	N	Find 1000 more than a given number.
KS22016MATHS1	12		1	4	N	Addition of two numbers with up to four digits.
KS22016MATHS1	13		1	5	N	Add fractions with the same denominator beyond one whole.
KS22016MATHS1	14		1	4	N	Use known number facts.
KS22016MATHS1	15		1	3	N	Subtract numbers mentally including tens from a 3 digit number.
KS22016MATHS1	16		1	5	N	Addition of two numbers with up to 3 d.p.

2018 KS2 Mathematics National Curriculum Tests						
Question Level Analysis						
Paper	Quest	p	Mark val	Year Gro	Strat	Objective
KS22016MATHS1	16		1	4	N	Find 1000 more than a given number.
KS22016MATHS1	17		1	4	N	Addition of two numbers with up to four digits.
KS22016MATHS1	18		1	5	N	Add fractions with the same denominator beyond one whole.
KS22016MATHS1	19		1	4	N	Use known number facts.
KS22016MATHS1	2		1	3	N	Subtract numbers mentally including tens from a 3 digit number.
KS22016MATHS1	20		1	5	N	Addition of two numbers with up to 3 d.p.
KS22016MATHS1	21		1	4	N	Addition of two numbers with up to 3 d.p.
KS22016MATHS1	22		1	4	N	Addition of two numbers with up to 3 d.p.
KS22016MATHS1	23		1	4	N	Addition of two numbers with up to 3 d.p.
KS22016MATHS1	24		1	4	N	Addition of two numbers with up to 3 d.p.
KS22016MATHS1	26		1	4	N	Addition of two numbers with up to 3 d.p.
KS22016MATHS1	27		1	4	N	Addition of two numbers with up to 3 d.p.
KS22016MATHS1	28		1	4	N	Addition of two numbers with up to 3 d.p.

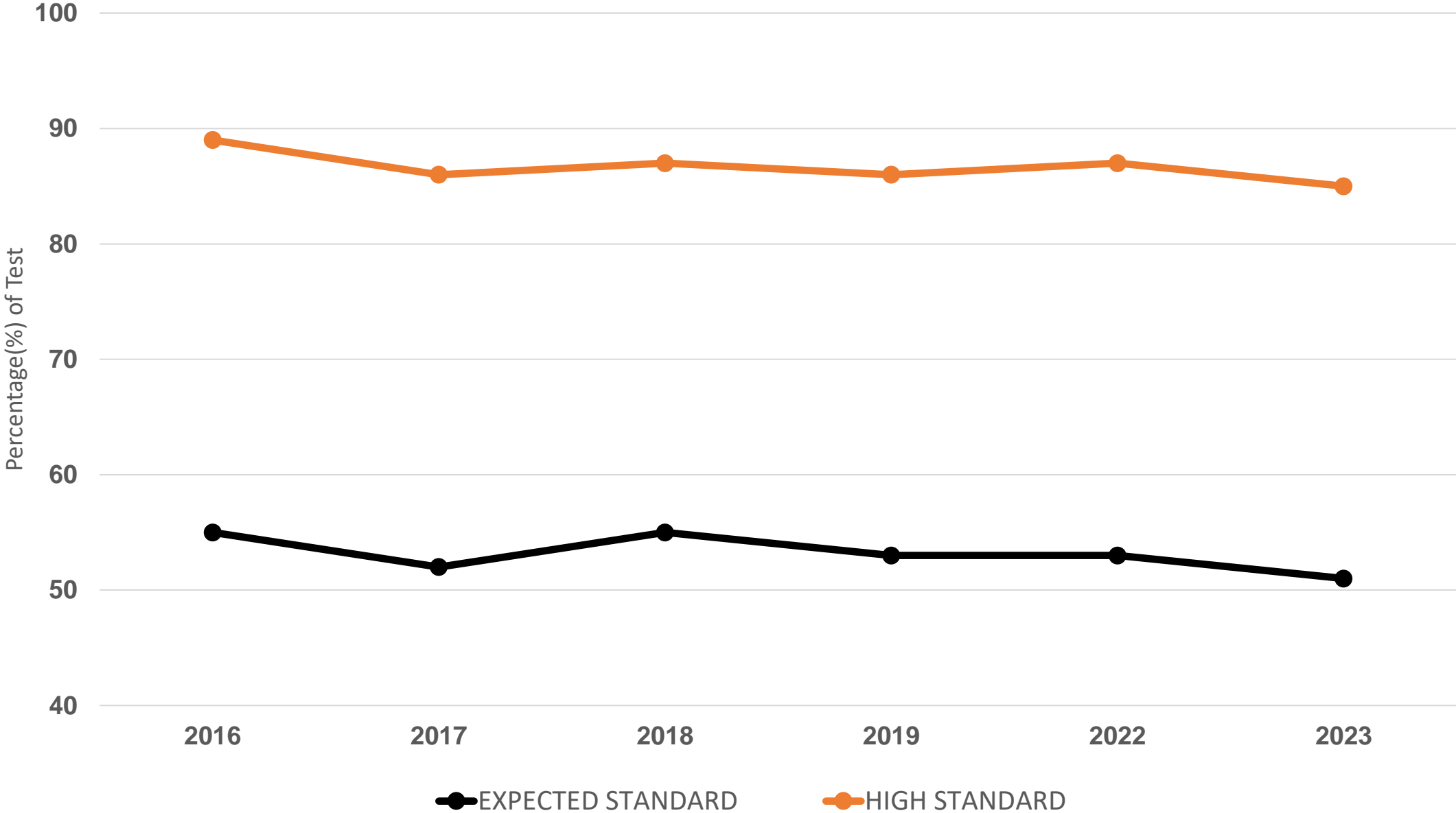
2019 KS2 Mathematics National Curriculum Tests						
Question Level Analysis						
Paper	Quest	p	Mark val	Year Gro	Strat	Objective
KS22018MATHS1	1		1	3	N	Addition of a two digit integer and a three digit integer.
KS22018MATHS1	2		1	3	N	Addition of a two digit integer and a three digit integer.
KS22018MATHS1	3		1	3	N	Addition of a two digit integer and a three digit integer.
KS22018MATHS1	4		1	3	N	Addition of a two digit integer and a three digit integer.
KS22018MATHS1	5		1	3	N	Addition of a two digit integer and a three digit integer.
KS22018MATHS1	6		1	3	N	Addition of a two digit integer and a three digit integer.
KS22018MATHS1	7		1	3	N	Addition of a two digit integer and a three digit integer.
KS22018MATHS1	8		1	3	N	Addition of a two digit integer and a three digit integer.
KS22018MATHS1	9		1	3	N	Addition of a two digit integer and a three digit integer.
KS22018MATHS1	10		1	3	N	Addition of a two digit integer and a three digit integer.
KS22018MATHS1	11		1	3	N	Addition of a two digit integer and a three digit integer.
KS22018MATHS1	12		1	3	N	Addition of a two digit integer and a three digit integer.
KS22018MATHS1	13		1	3	N	Addition of a two digit integer and a three digit integer.
KS22018MATHS1	14		1	3	N	Addition of a two digit integer and a three digit integer.
KS22018MATHS1	15		1	3	N	Addition of a two digit integer and a three digit integer.
KS22018MATHS1	16		1	3	N	Addition of a two digit integer and a three digit integer.
KS22018MATHS1	17		1	3	N	Addition of a two digit integer and a three digit integer.
KS22018MATHS1	18		1	3	N	Addition of a two digit integer and a three digit integer.
KS22018MATHS1	19		1	3	N	Addition of a two digit integer and a three digit integer.
KS22018MATHS1	20		2	3	N	Addition of a two digit integer and a three digit integer.
KS22018MATHS1	21		1	3	N	Addition of a two digit integer and a three digit integer.
KS22018MATHS1	22		2	3	N	Addition of a two digit integer and a three digit integer.
KS22018MATHS1	23		1	3	N	Addition of a two digit integer and a three digit integer.
KS22018MATHS1	24		2	3	N	Addition of a two digit integer and a three digit integer.
KS22018MATHS1	25		1	3	N	Addition of a two digit integer and a three digit integer.
KS22018MATHS1	26		1	3	N	Addition of a two digit integer and a three digit integer.
KS22018MATHS1	27		1	3	N	Addition of a two digit integer and a three digit integer.
KS22018MATHS1	28		1	3	N	Addition of a two digit integer and a three digit integer.

2021 KS2 Mathematics National Curriculum Tests						
Question Level Analysis						
Paper	Quest	p	Mark val	Year Gro	Strat	Curriculum Objective
KS22019MATHS1	1		1	4	N	Addition of a four digit integer and a two digit integer which are both multiples of 10.
KS22019MATHS1	2		1	4	N	Addition of a four digit integer and a two digit integer.
KS22019MATHS1	3		1	4	N	Addition of a four digit integer and a two digit integer.
KS22019MATHS1	4		1	4	N	Addition of a four digit integer and a two digit integer.
KS22019MATHS1	5		1	4	N	Addition of a four digit integer and a two digit integer.
KS22019MATHS1	6		1	4	N	Addition of a four digit integer and a two digit integer.
KS22019MATHS1	7		1	4	N	Addition of a four digit integer and a two digit integer.
KS22019MATHS1	8		1	4	N	Addition of a four digit integer and a two digit integer.
KS22019MATHS1	9		1	4	N	Addition of a four digit integer and a two digit integer.
KS22019MATHS1	10		1	4	N	Addition of a four digit integer and a two digit integer.
KS22019MATHS1	11		1	4	N	Addition of a four digit integer and a two digit integer.
KS22019MATHS1	12		1	4	N	Addition of a four digit integer and a two digit integer.
KS22019MATHS1	13		1	4	N	Addition of a four digit integer and a two digit integer.
KS22019MATHS1	14		1	4	N	Addition of a four digit integer and a two digit integer.
KS22019MATHS1	15		1	4	N	Addition of a four digit integer and a two digit integer.
KS22019MATHS1	16		1	4	N	Addition of a four digit integer and a two digit integer.
KS22019MATHS1	17		1	4	N	Addition of a four digit integer and a two digit integer.
KS22019MATHS1	18		1	4	N	Addition of a four digit integer and a two digit integer.
KS22019MATHS1	19		1	4	N	Addition of a four digit integer and a two digit integer.
KS22019MATHS1	20		2	4	N	Addition of a four digit integer and a two digit integer.
KS22019MATHS1	21		1	4	N	Addition of a four digit integer and a two digit integer.
KS22019MATHS1	22		2	4	N	Addition of a four digit integer and a two digit integer.
KS22019MATHS1	23		1	4	N	Addition of a four digit integer and a two digit integer.
KS22019MATHS1	24		2	4	N	Addition of a four digit integer and a two digit integer.
KS22019MATHS1	25		1	4	N	Addition of a four digit integer and a two digit integer.
KS22019MATHS1	26		1	4	N	Addition of a four digit integer and a two digit integer.
KS22019MATHS1	27		1	4	N	Addition of a four digit integer and a two digit integer.
KS22019MATHS1	28		1	4	N	Addition of a four digit integer and a two digit integer.

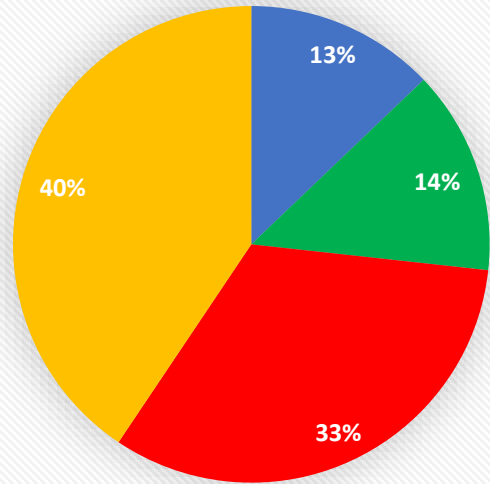
2022 KS2 Mathematics National Curriculum Tests						
Question Level Analysis						
Paper	Quest	p	Mark val	Year Gro	Strat	Curriculum Objective
KS22022MATHS1	1		1	4	N	Addition of three numbers with up to 4 digits.
KS22022MATHS2	1		1	6	N	Read, order and compare numbers up to 10 000 000.
KS22022MATHS3	1		1	6	N	Read, order and compare numbers up to 10 000 000.
KS22022MATHS1	2		1	6	N	Read, order and compare numbers up to 10 000 000.
KS22022MATHS2	2		1	6	N	Read, order and compare numbers up to 10 000 000.
KS22022MATHS3	2		1	6	N	Read, order and compare numbers up to 10 000 000.
KS22022MATHS1	3		1	6	N	Read, order and compare numbers up to 10 000 000.
KS22022MATHS2	3		1	6	N	Read, order and compare numbers up to 10 000 000.
KS22022MATHS3	3		1	6	N	Read, order and compare numbers up to 10 000 000.
KS22022MATHS1	4		1	6	N	Read, order and compare numbers up to 10 000 000.
KS22022MATHS2	4		1	6	N	Read, order and compare numbers up to 10 000 000.
KS22022MATHS3	4		1	6	N	Read, order and compare numbers up to 10 000 000.
KS22022MATHS1	5		1	6	N	Read, order and compare numbers up to 10 000 000.
KS22022MATHS2	5		1	6	N	Read, order and compare numbers up to 10 000 000.
KS22022MATHS3	5		1	6	N	Read, order and compare numbers up to 10 000 000.
KS22022MATHS1	6		1	6	N	Read, order and compare numbers up to 10 000 000.
KS22022MATHS2	6		1	6	N	Read, order and compare numbers up to 10 000 000.
KS22022MATHS3	6		1	6	N	Read, order and compare numbers up to 10 000 000.
KS22022MATHS1	7		1	6	N	Read, order and compare numbers up to 10 000 000.
KS22022MATHS2	7		1	6	N	Read, order and compare numbers up to 10 000 000.
KS22022MATHS3	7		1	6	N	Read, order and compare numbers up to 10 000 000.

2023 KS2 Mathematics National Curriculum Tests							
Question Level Analysis							
Paper	Quest	p	Mark val	Year Gro	Strat	Sub-Strat	Curriculum Objective
KS22023MATHS1	1		1	3	N	AS	Subtraction of a 2 digit number which is a multiple of 10 from a 3 digit number.
KS22023MATHS1	2		1	4	N	AS	Addition of a four digit number and a three digit number.
KS22023MATHS1	3		1	4	N	MD	Multiplication of a 3 digit number by a 1 digit number.
KS22023MATHS1	4	a	1	4	N	AS	Addition of a 4 digit number and a 3 digit number.
KS22023MATHS1	5	b	1	4	N	MD	Apply the associative law of multiplication to three 1 digit and 2 digit numbers.
KS22023MATHS1	6		1	3	N	MD	Multiply a 2 digit number by 10.
KS22023MATHS1	7		1	5	N	D	Addition of a 1 digit 1.d.p number to a one digit 3.d.p number.
KS22023MATHS1	8		1	4	N	AS	Subtraction of a 4 digit number from a 4 digit number.
KS22023MATHS1	9		1	4	N	MD	Division of a 3 digit by a 1 digit whole number, using division facts for multiplication tables up to 12x12.
KS22023MATHS1	10		1	3	N	MD	Multiplication of a 2 digit number by a 1 digit number.
KS22023MATHS1	11		1	4	N	MD	Division of a 4 digit by a 1 digit whole number, using division facts for multiplication tables up to 12x12.
KS22023MATHS1	12	a	1	3	N	AS	Subtraction of a 3 digit number from a 3 digit number.
KS22023MATHS1	13	b	1	4	N	MD	Division of a 4 digit by a 1 digit whole number, using division facts for multiplication tables up to 12x12.
KS22023MATHS1	14		1	6	N	F	Multiplication of fractions with different denominators.
KS22023MATHS1	15		1	5	N	MD	Division of a 3 digit number by a 1 digit number.
KS22023MATHS1	16		1	5	N	F	Addition of fractions with denominators, which are multiples of the same number.
KS22023MATHS1	17		1	5	N	D	Division of a one digit 1.d.p number by 10.
KS22023MATHS1	18		1	5	N	F	Addition of fractions with denominators, which are multiples of the same number.
KS22023MATHS1	19		1	5	N	D	Subtraction of a two digit 3.d.p number from a two digit 2.d.p number.
KS22023MATHS1	20		2	5	N	MD	Multiplication of a 3 digit number by a 2 digit number.

Percentage of Marks

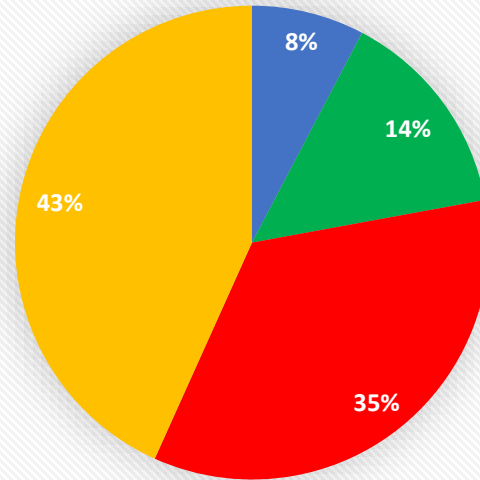


2016



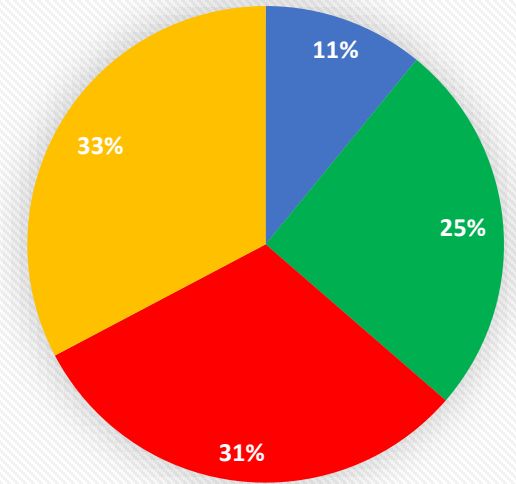
■ 3 ■ 4 ■ 5 ■ 6

2017



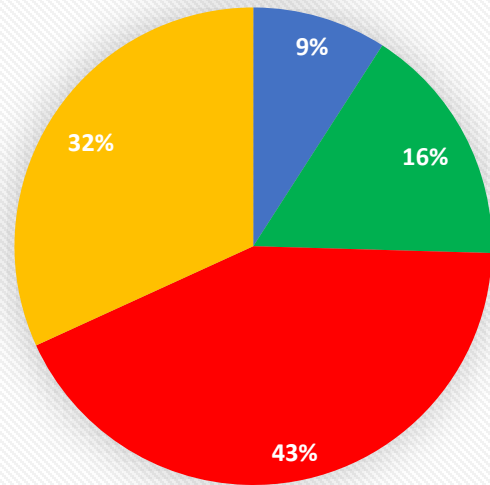
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2018



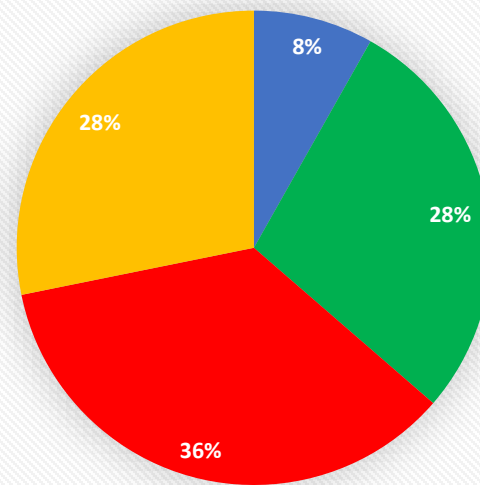
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2019



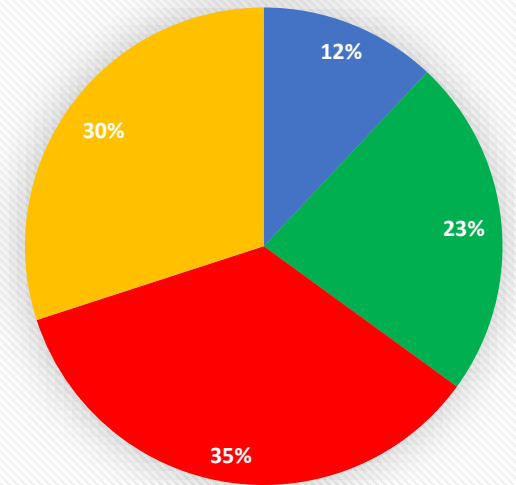
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2022



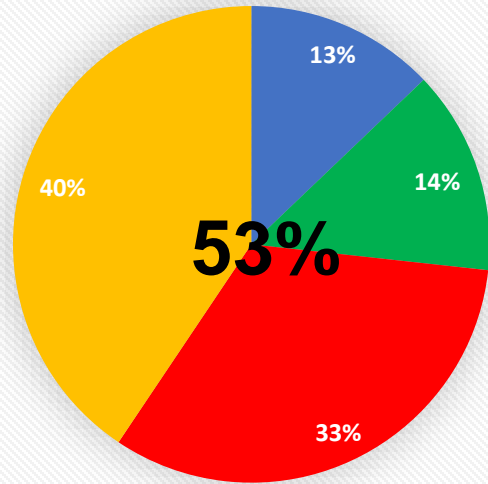
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2023



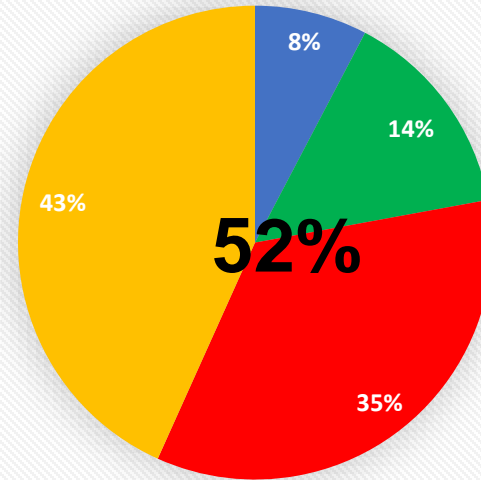
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2016



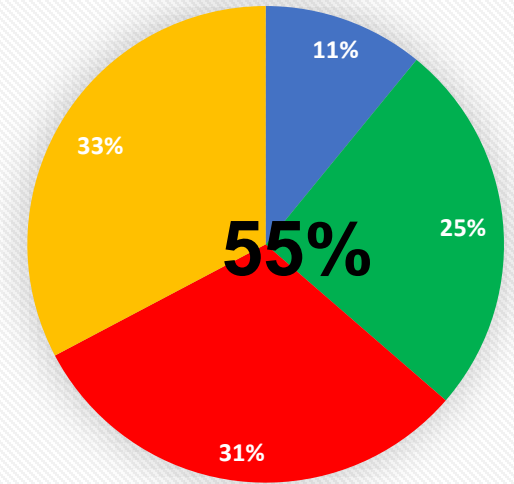
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2017



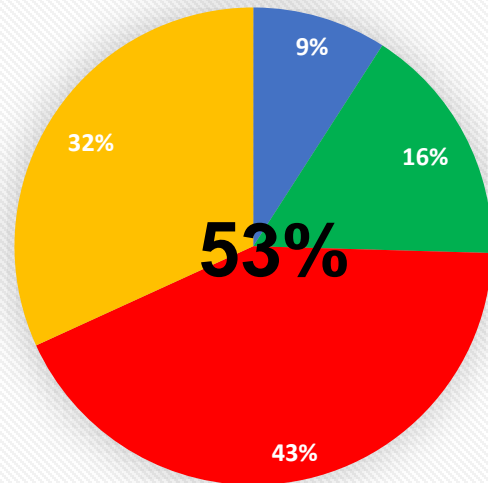
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2018



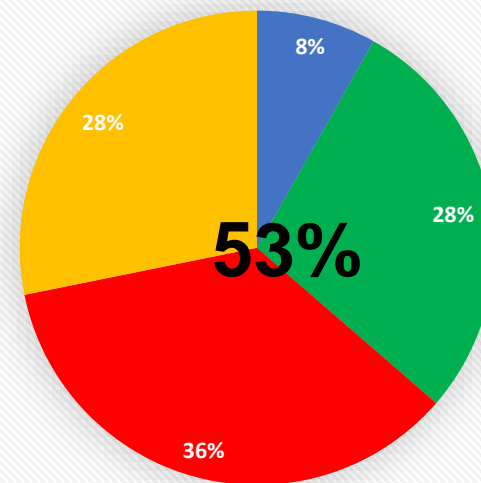
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2019



■ 3 ■ 4 ■ 5 ■ 6

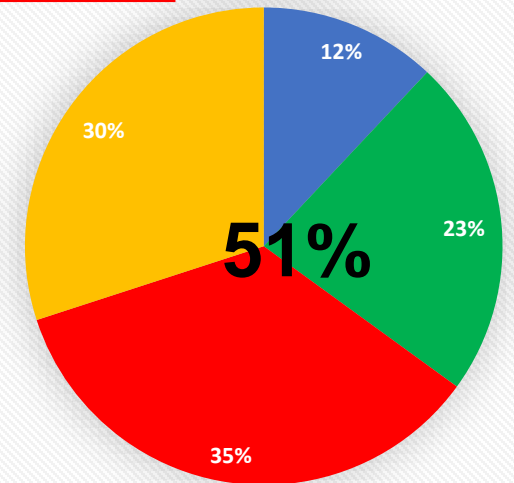
2022



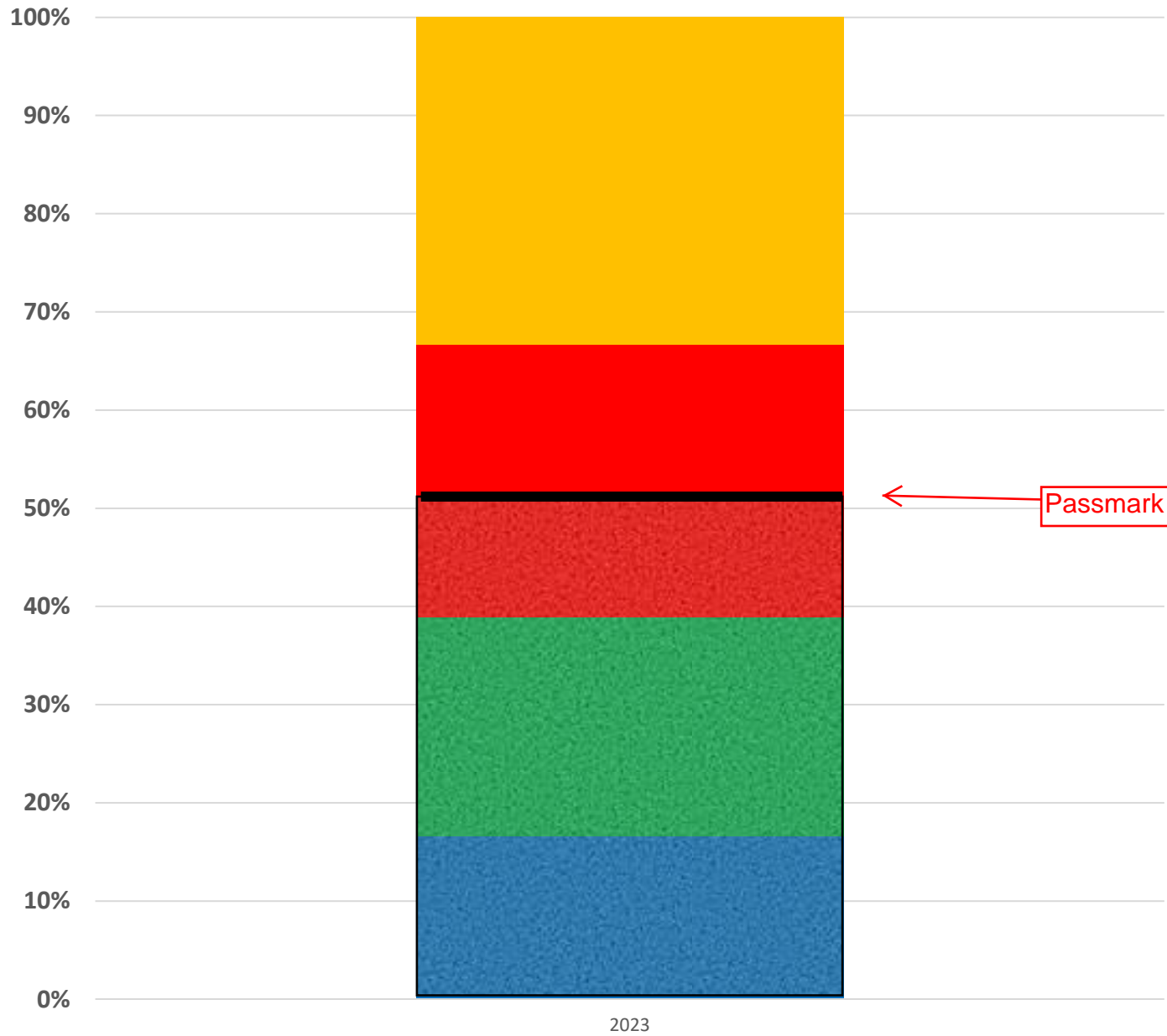
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2023

Passmark 51%



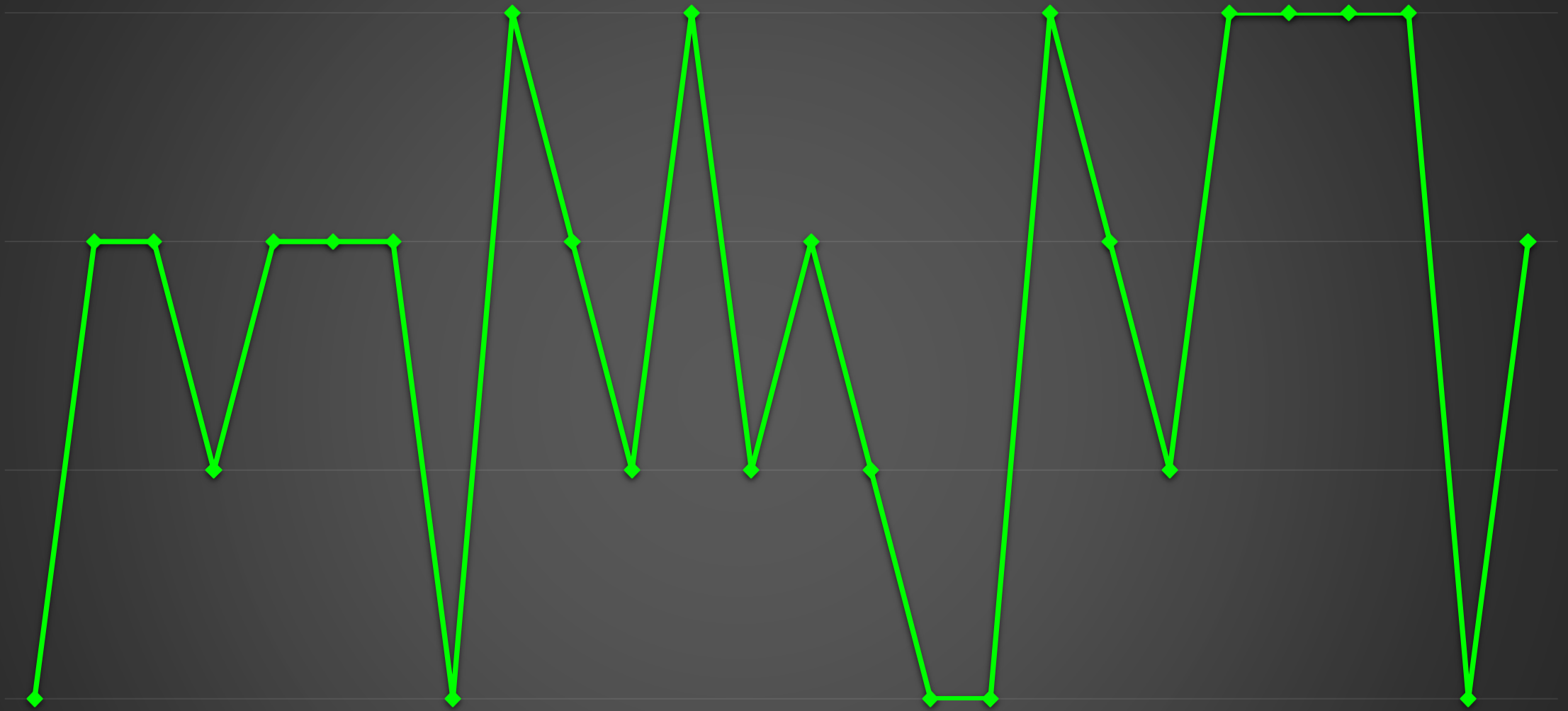
■ 3 ■ 4 ■ 5 ■ 6



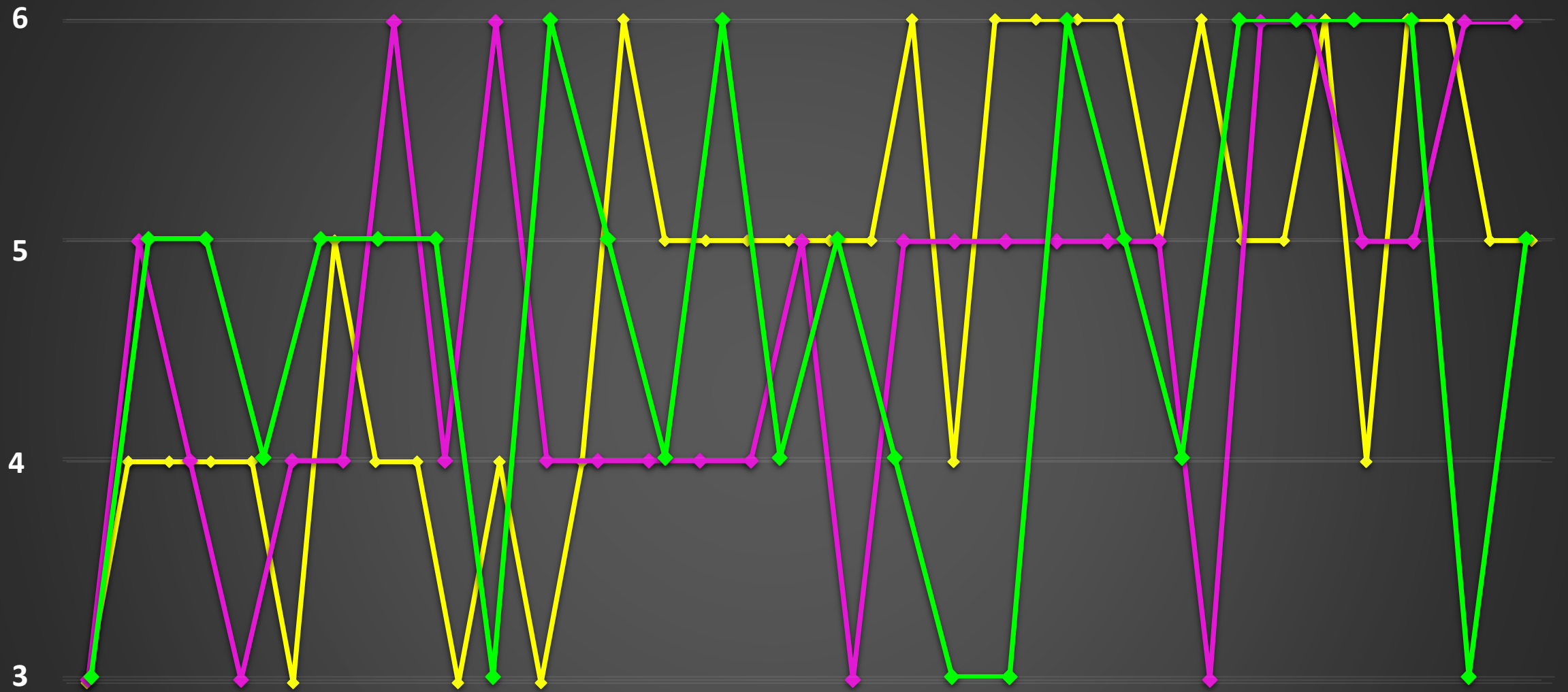
2023

■ Year 3 ■ Year 4 ■ Year 5 ■ Year 6

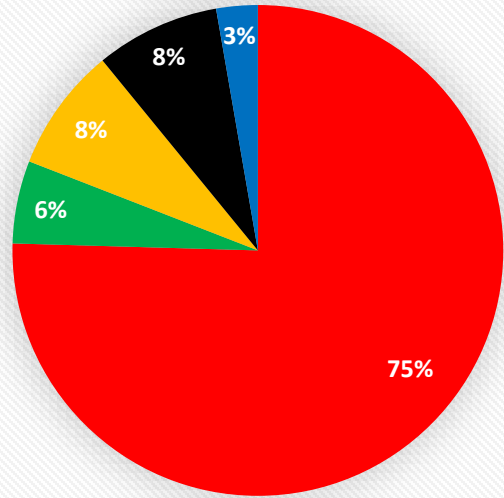
Year-groups and Paper 1, 2 and 3



Year-groups and Paper 1, 2 and 3

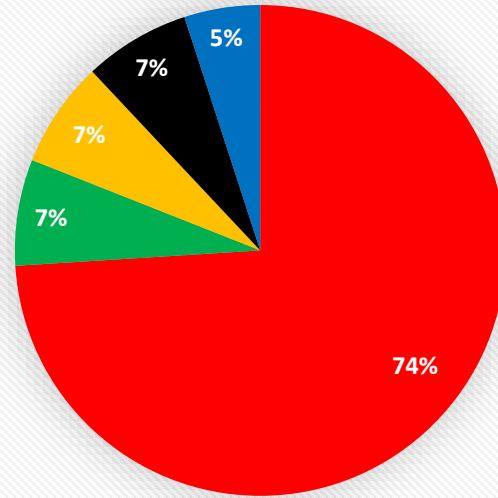


2016



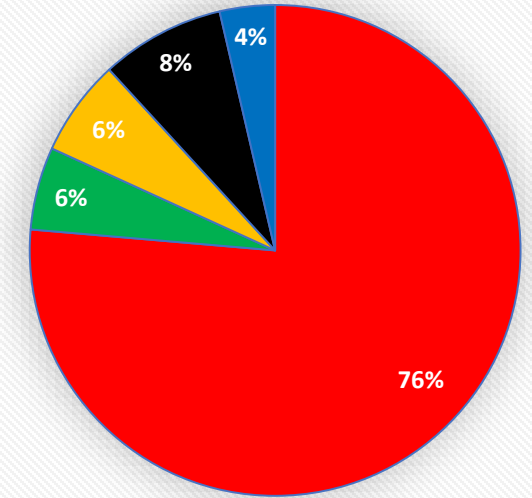
■ Number ■ Algebra ■ Geometry ■ Measurement ■ Statistics

2017



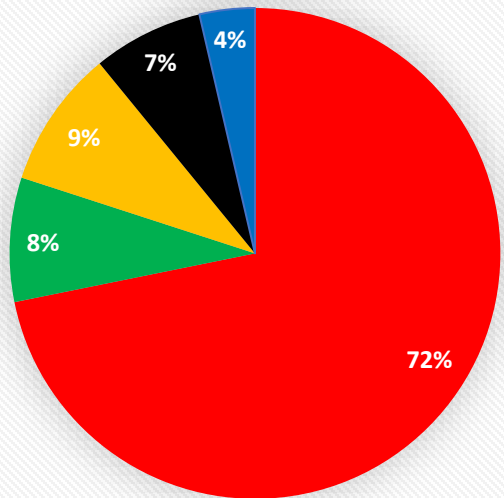
■ Number ■ Algebra ■ Geometry ■ Measurement ■ Statistics

2018



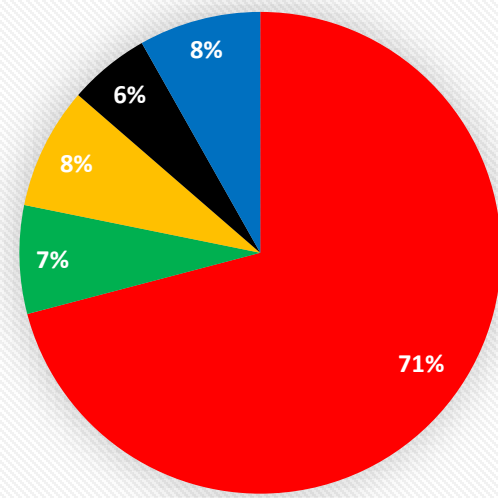
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2019



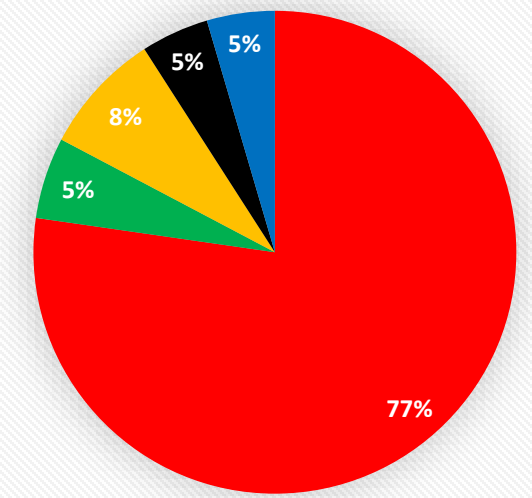
■ Number ■ Algebra ■ Geometry ■ Measurement ■ Statistics

2022



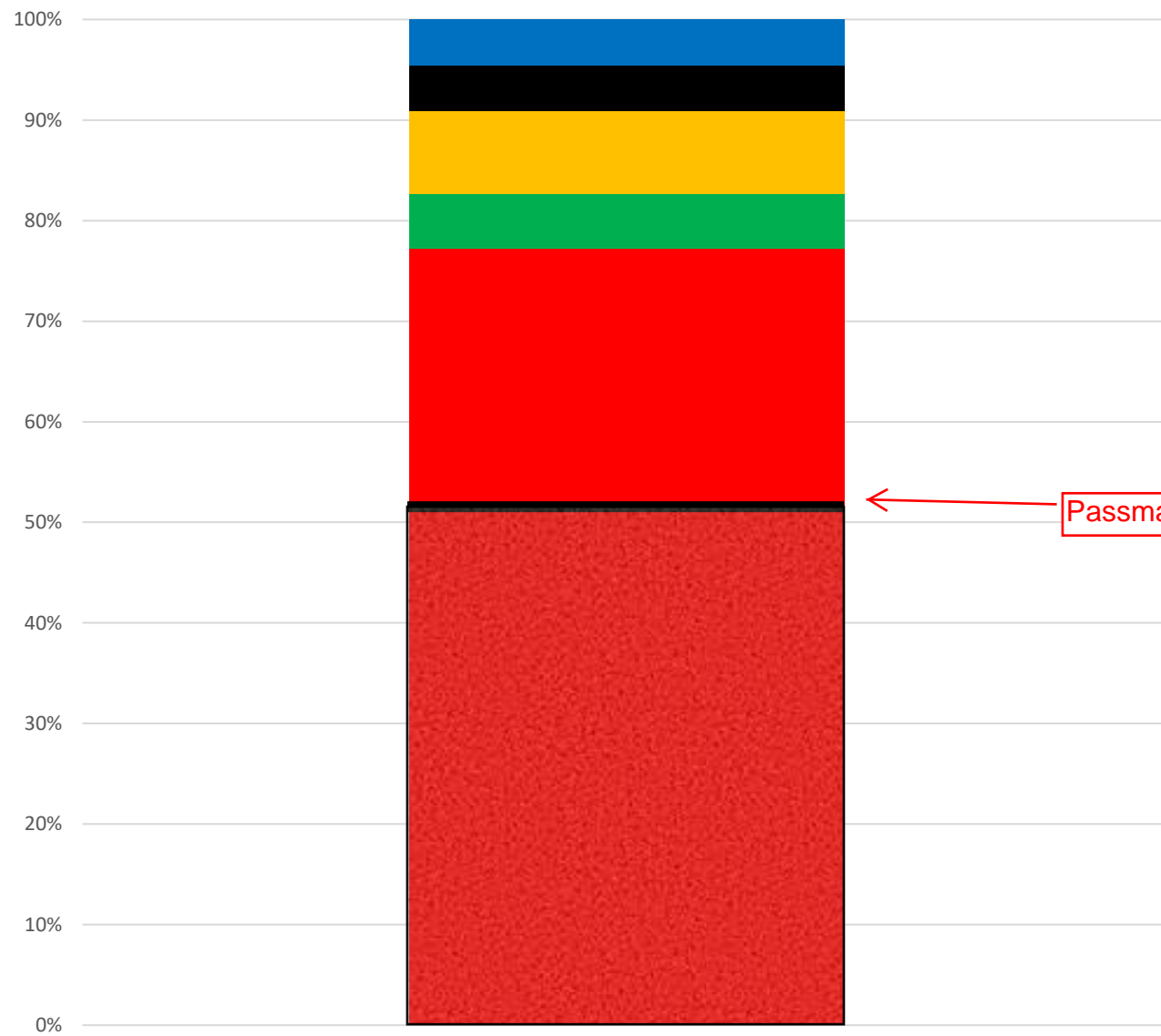
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2023



■ Number ■ Algebra ■ Geometry ■ Measurement ■ Statistics

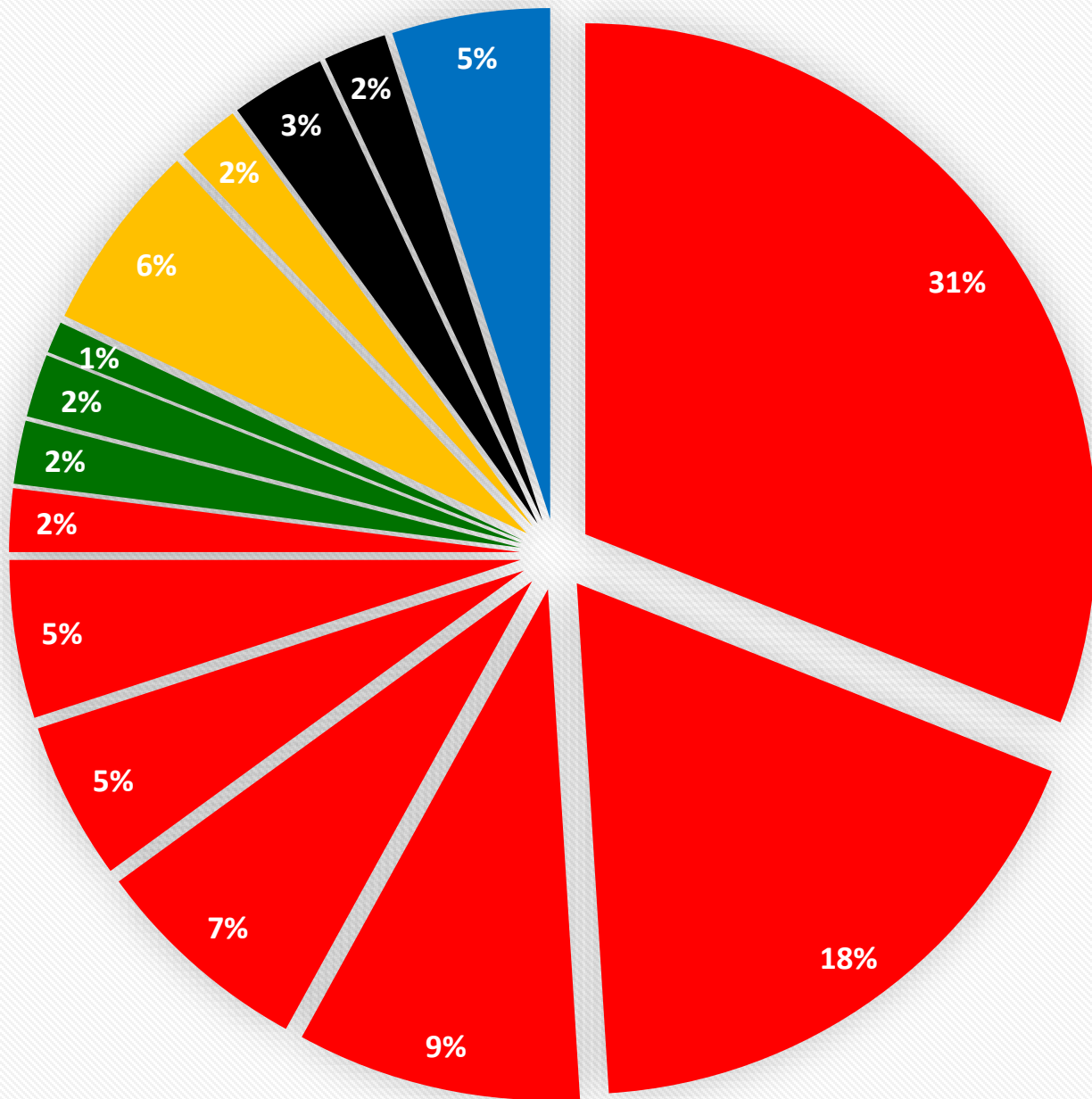
2023



Passmark 51%

■ Number ■ Algebra ■ Geometry ■ Measurement ■ Statistics

		2016	2017	2018	2019	2022	2023
Number		76	74	76	72	71	77
	Place Value	14	10	11	11	8	9
	Addition & Subtraction	10	7	8	7	9	7
	Multiplication & Division	23	21	30	24	23	31
	Decimals	14	13	7	12	9	5
	Fraction	11	15	15	13	15	18
	Percentage	2	3	4	4	5	5
	Ratio & Proportion	2	5	1	1	2	2
Algebra		5	7	6	8	7	5
	Equations	4	3	2	4	4	2
	Substitution	1	2	3	0	3	2
	Sequences	0	2	1	4	0	1
Geometry		8	7	6	9	8	8
	Angles and Shapes	5	6	4	7	5	6
	Transformations	3	1	2	2	3	2
Measurement		8	7	8	7	6	5
	Perimeter, Area and Volume	2	4	1	3	2	0
	Measures	3	1	5	3	4	2
	Time	3	2	2	1	0	3
Statistics		3	5	4	4	8	5

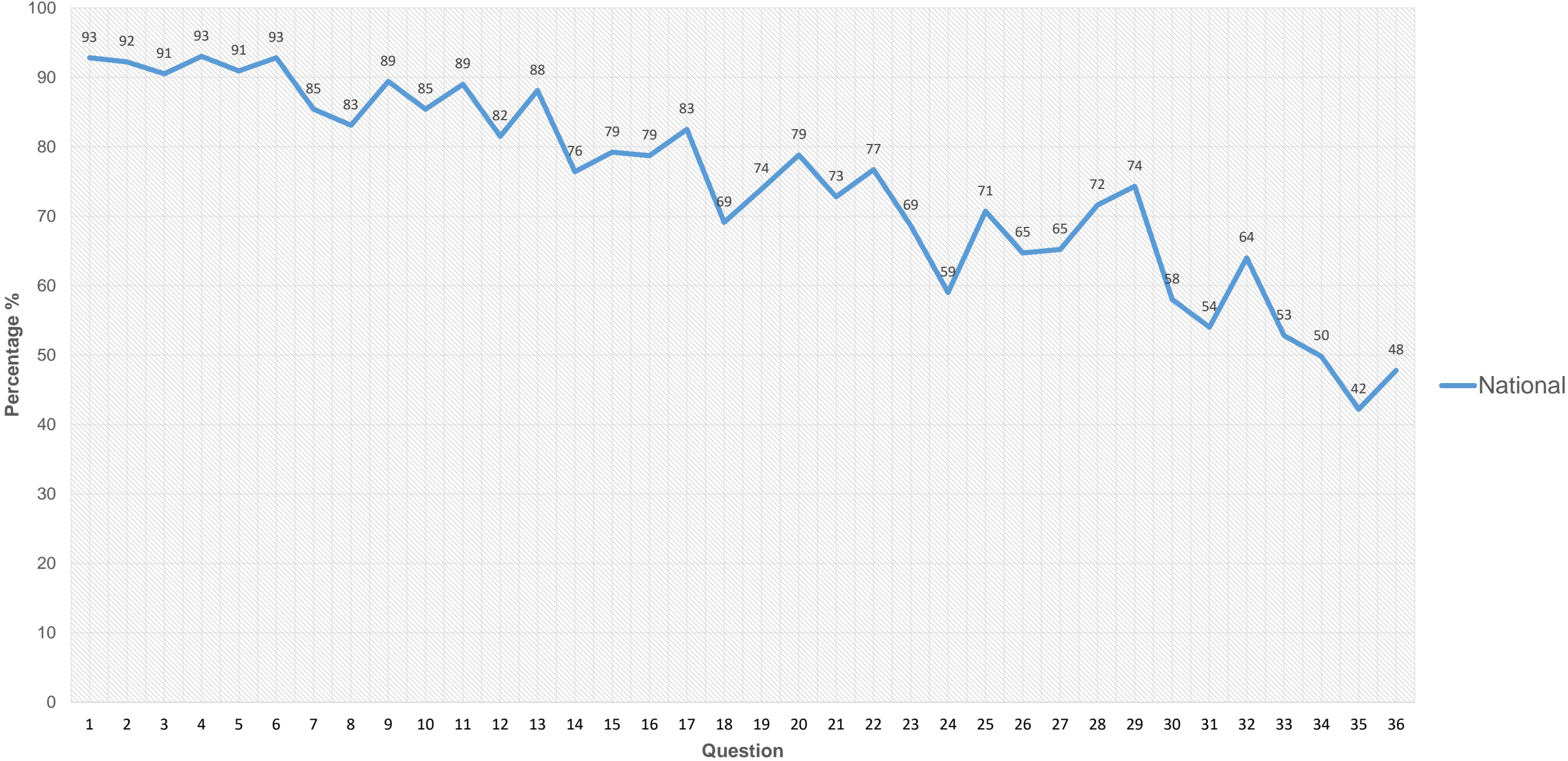


- Multiplication & Division
- Fractions
- Place Value
- Addition & Subtraction
- Decimals
- Percentages
- Ratio & Proportion
- Equations
- Substitution
- Sequences
- Angles and Shapes
- Transformations
- Time
- Measures
- Statistics

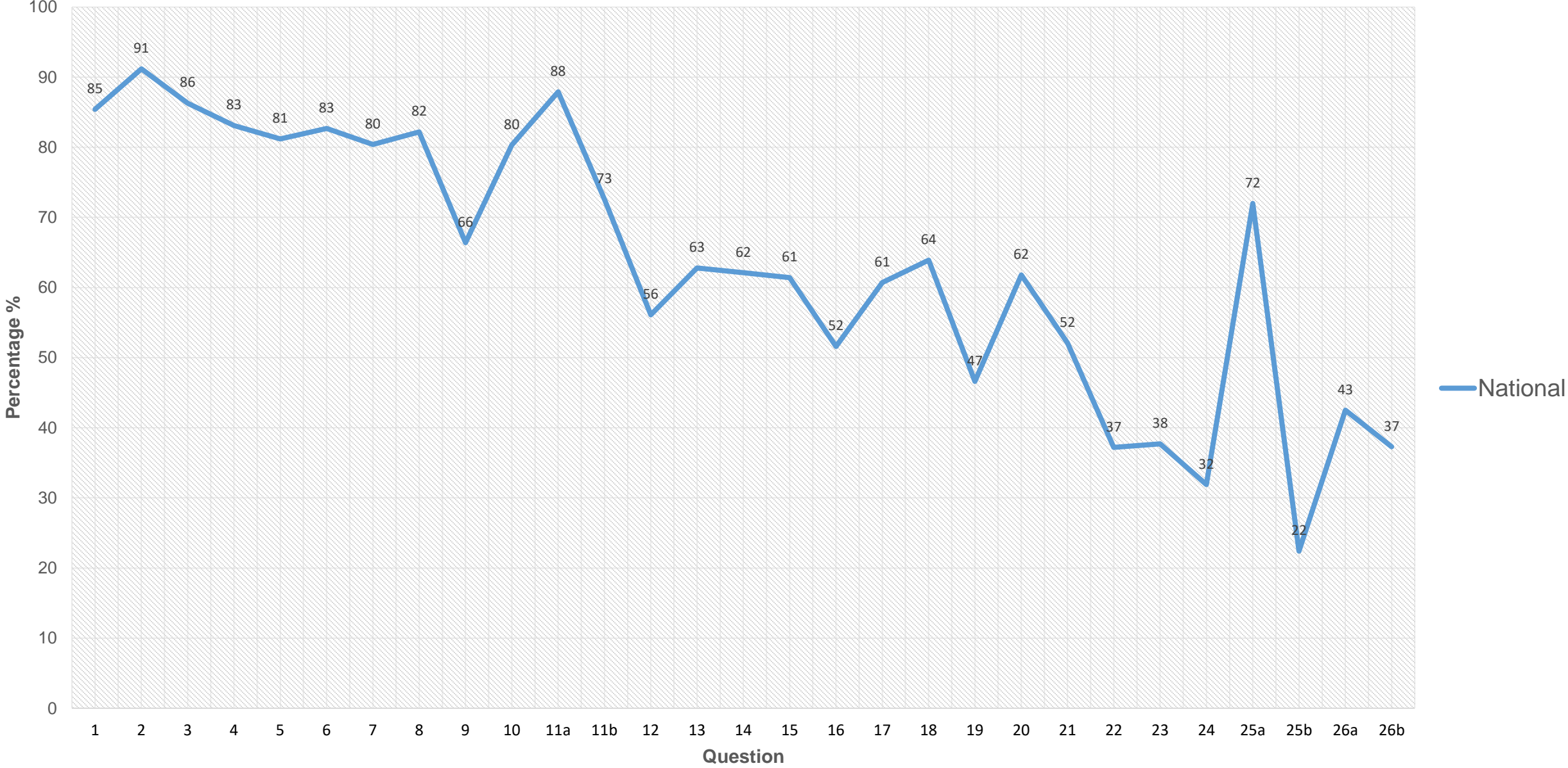
Year	One answer	Two answers	Total number of questions
2016	66	11	77
2017	75	4	79
2018	75	5	80
2019	75	7	82
2022	77	5	82
2023	79	6	85

Year	One mark	Two marks	Three marks	Total number of questions
2016	45	31	1	77
2017	53	25	1	79
2018	52	26	2	80
2019	58	24	2	82
2022	55	26	1	82
2023	63	19	3	85

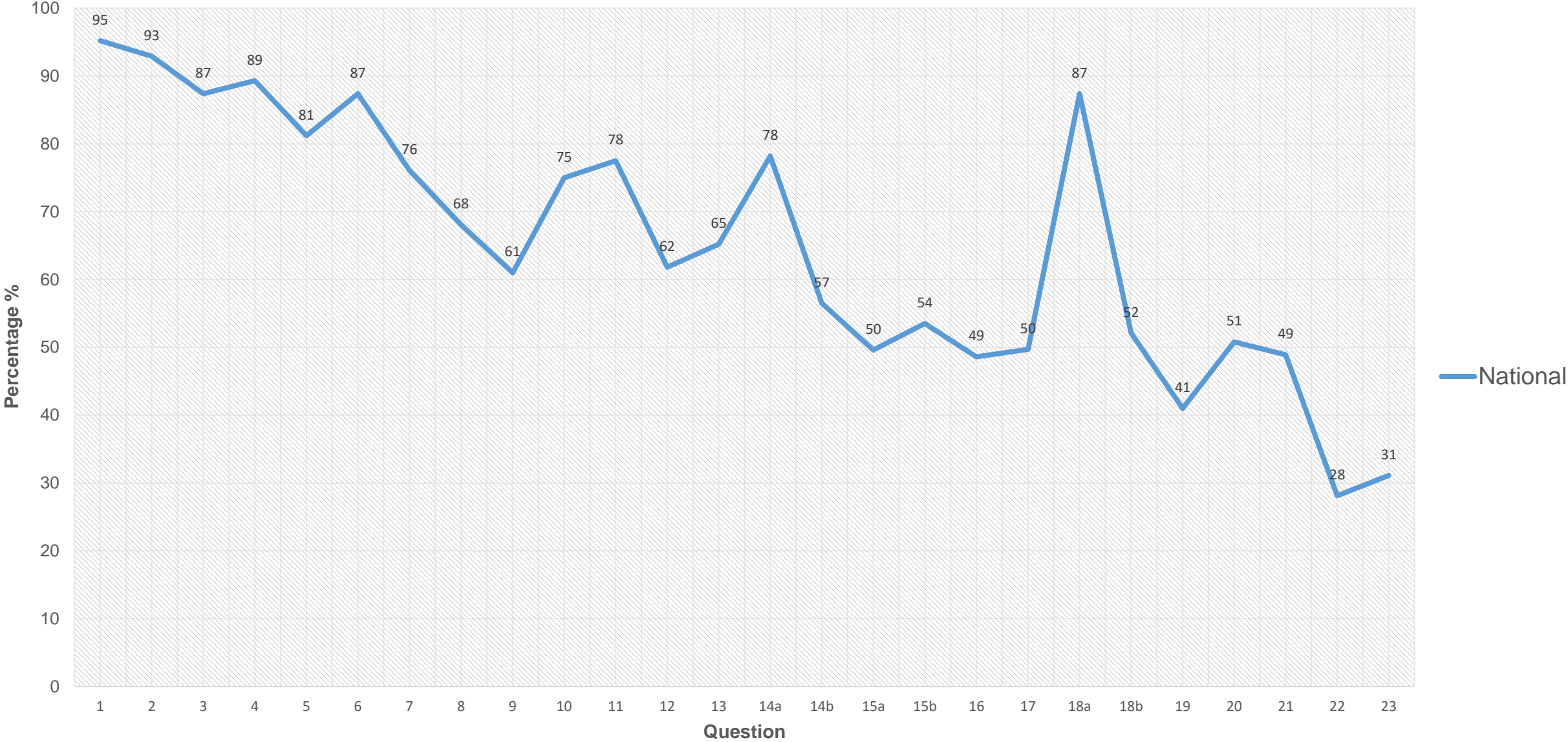
National Results - Paper 1



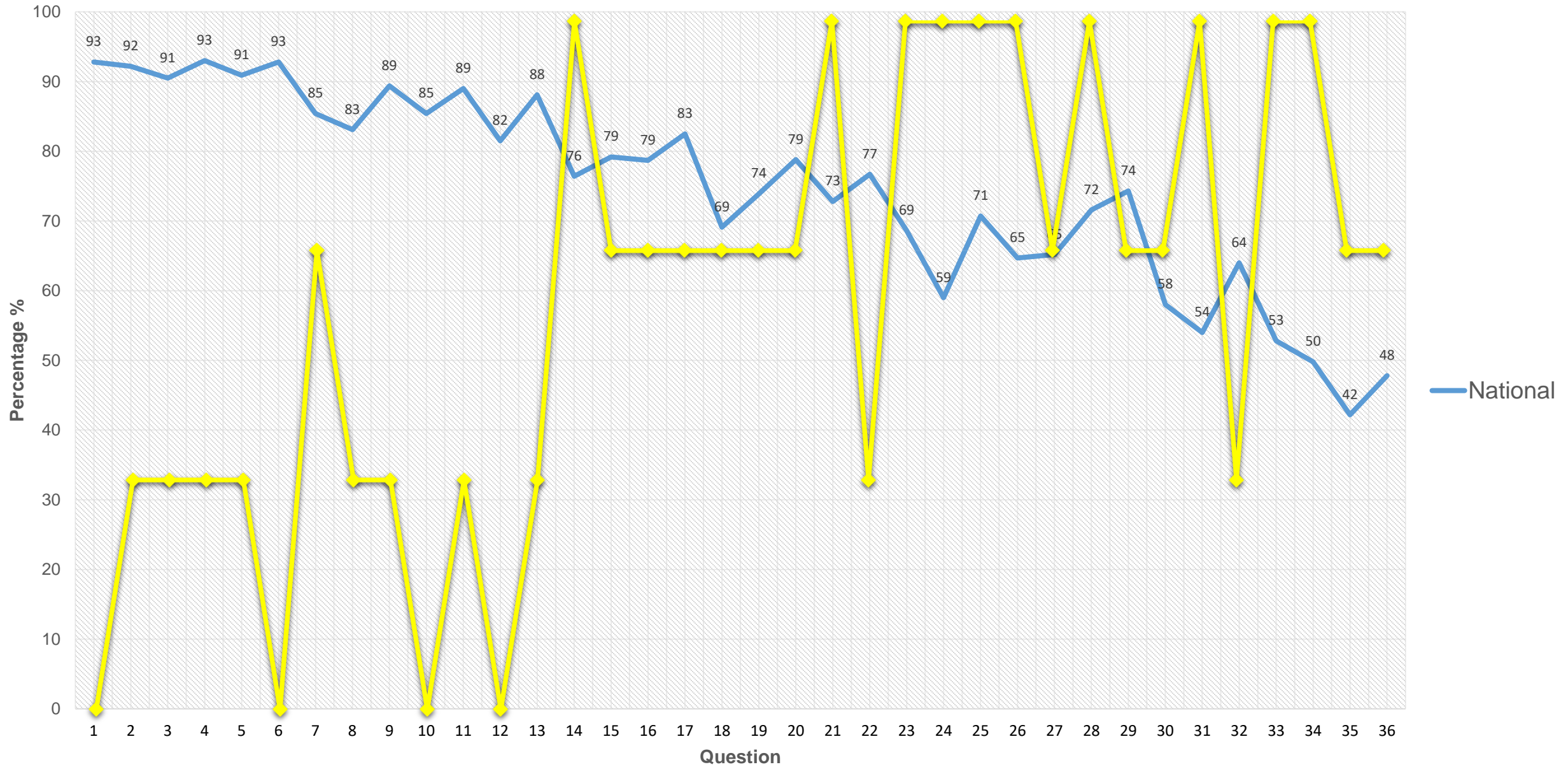
National Results - Paper 2



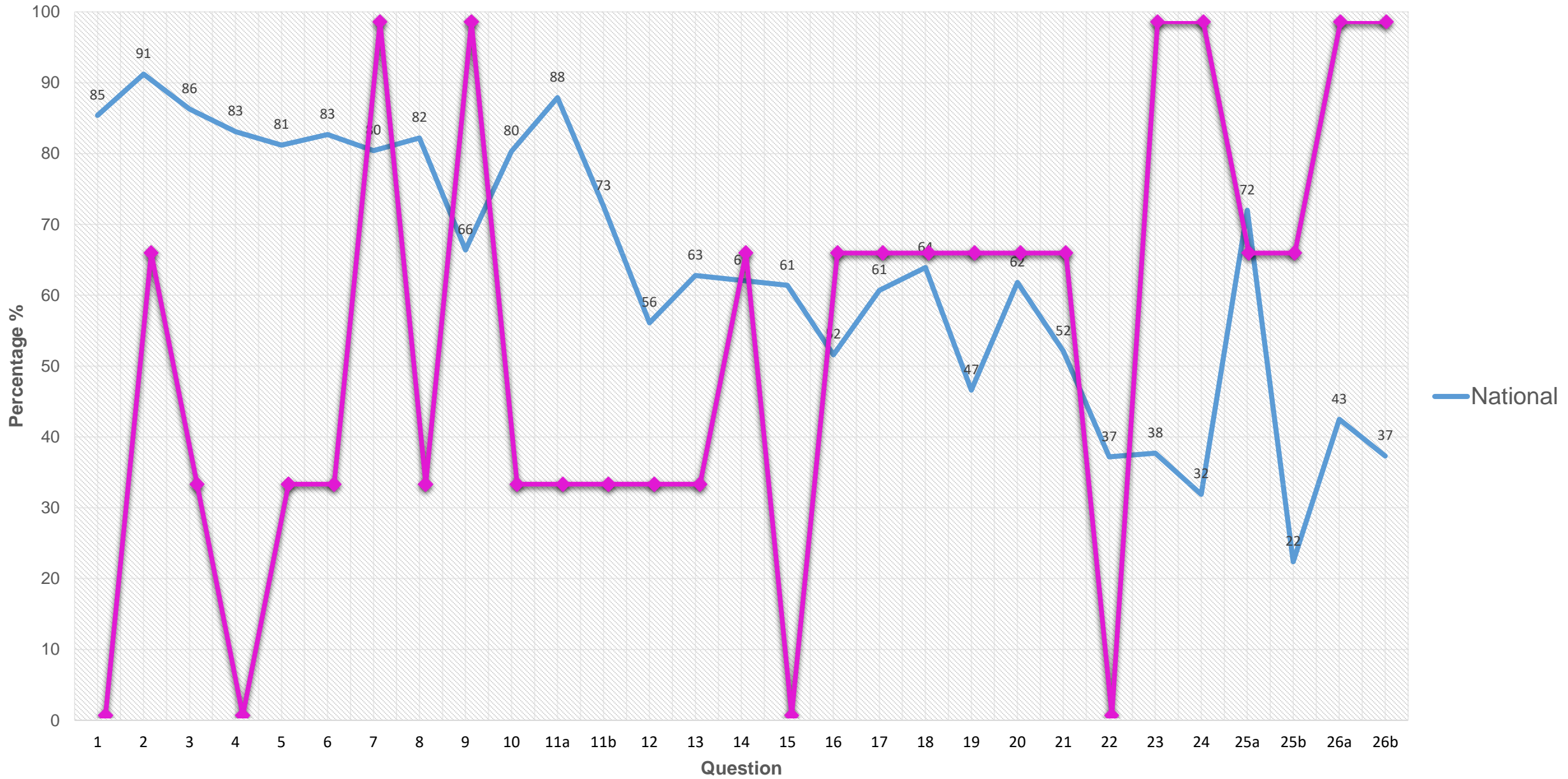
National Results - Paper 3



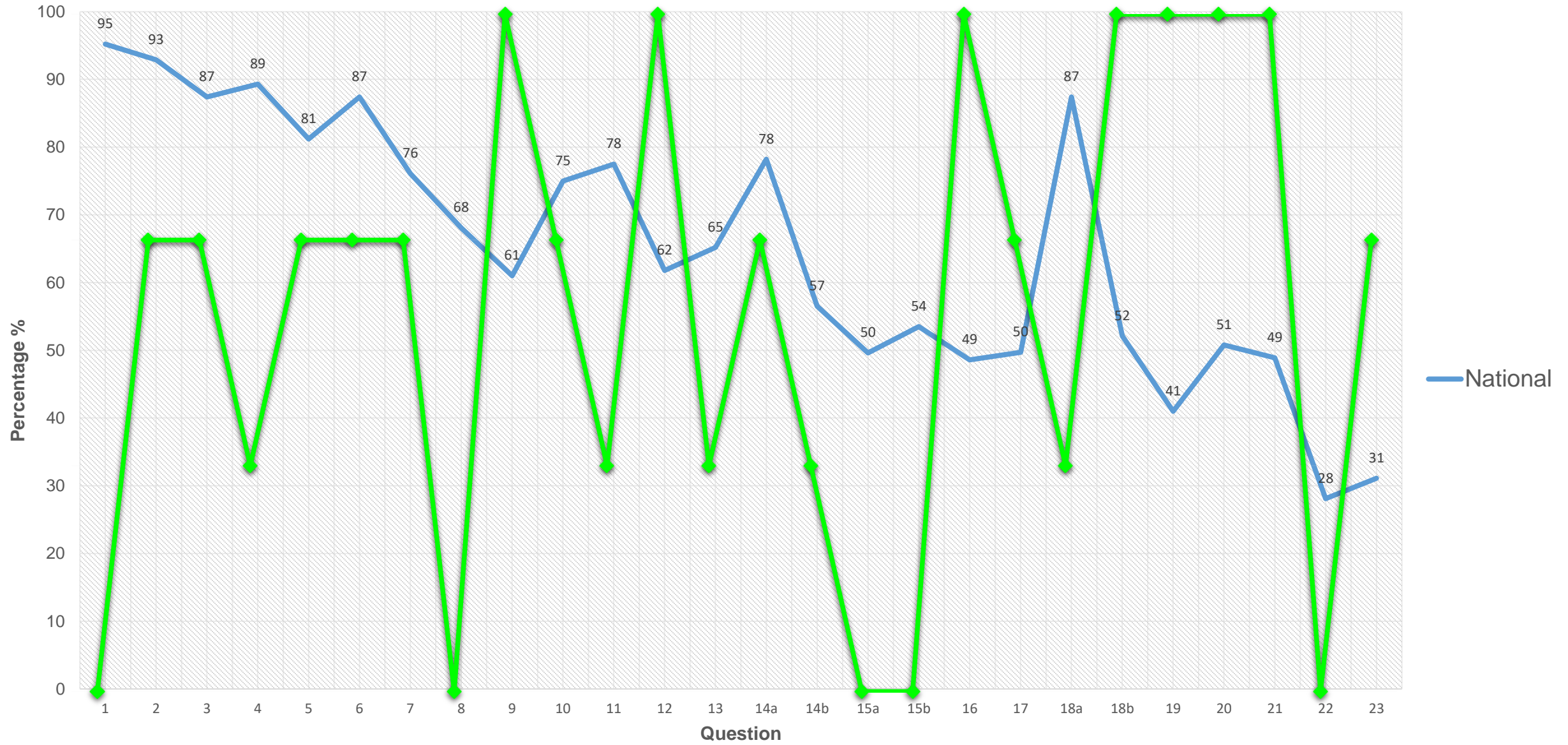
National results v Year group - Paper 1



National results v Year group - Paper 2



National results v Year group - Paper 3



DfE Strands and National

DfE Strands		Marks	% Nat
C	Addition, subtraction, multiplication and division (calculations)	37	73
F	Fractions, decimals and percentages	26	64
N	Number and place value	10	87
M	Measurement	10	50
R	Ratio and proportion	9	52
G	Geometry - properties of shapes	6	63
A	Algebra	5	42
S	Statistics	5	61
P	Geometry - position and direction	2	87

Example of Strand and Substrand Analysis for a School

NCC Strand	Total Marks	% per Strand
A	6	49.1
G	9	60.8
M	5	50.2
N	85	63.0
S	5	56.6

N	Number
M	Measures
G	Geometry
S	Statistics
A	Algebra

AS	Addition & Subtraction
MD	Multiplication & Division
D	Decimals
F	Fractions
P	Percentages
Ti	Time
PV	Place Value
T	Transformations
S	Statistics
Seq	Sequences
A&S	Angles & Shape Properties
RP	Ration & Proportion
Sub	Substitution
E	Equations
M	Measurements

NCC Substrar	Total Marks	% per Substrand
A&S	7	54.1
AS	7	82.7
D	6	67.4
E	3	49.5
F	20	55.0
M	2	36.5
MD	34	61.7
P	6	45.2
PV	10	83.4
RP	2	33.6
S	5	56.6
Seq	1	78.1
Sub	2	34.0
T	2	84.0
Ti	3	59.3

Example of Year group Analysis for a School

Year group		Sum of Marks	% per Yeargroup
3		13	67.1
4		25	76.8
5		39	62.0
6		33	50.5

Example of Question Analysis for a school

Ques	Paper	Year group	Strand	Substrand	Objective	Test	Marks	YOUR Correct	Nat Corre	Gap to Nat	Nfk Corre
28	1	6	N	F	Division of a proper fraction by a one digit number	1	1	61.6	72	-10.4	61.6
21	1	6	N	F	Division of a 1 digit number from a proper fraction	1	1	63.2	73	-9.8	63.2
20	2	5	N	MD	Multiply a 4 digit number by a 2 digit number using long multiplication	2	2	53.3	62	-8.7	53.3
35	1	5	N	P	Calculate a percentage of a number which is a multiple of 10	1	1	33.5	42	-8.5	33.5
23	1	6	N	MD	Apply the order of operations to complete a calculation	1	1	60.8	69	-8.2	60.8
33	1	6	N	MD	Division of a 4 digit by a 2 digit whole number	1	2	44.8	53	-8.2	44.8
25	1	6	N	MD	Division of a 3 digit by a 2 digit whole number	1	2	62.9	71	-8.1	62.9
36	1	5	N	F	Multiplication of a proper fraction by a three digit number which is a multiple of 100	1	1	40.0	48	-8.0	40.0
14.2	3	4	N	F	Know simple decimal equivalents of fractions	3	1	49.2	57	-7.8	49.2
24	1	6	N	D	Multiplication of a one digit 1.d.p number by a two digit number	1	1	51.4	59	-7.6	51.4

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