Using Formulae - Answers

Key Stage 2: 2003 Paper A

1.

11a	42	***1m***	
11b	11	***1m***	

Key Stage 2: 2004 Paper A

1.

18	Award **TWO** marks for the correct answer of 21 If the answer is incorrect, award **ONE** mark for evidence of appropriate working, eg 5 + 2 = 7 15 ÷ 5 × 7 **OR** 5 new 2 old 10 new 4 old 15 new 6 old	***Up to 2m***	*Award **ONE** mark for an answer of 6 **OR** for 6 shown with no evidence of an incorrect method.* *Answer need not be given for the award of **ONE** mark.*

Key Stage 2: 2004 Paper A

2.

22	Award **TWO** marks for the correct answer of 15 If the answer is incorrect, award **ONE** mark for evidence of appropriate working, eg ▪ 60 ÷ 4 = wrong answer **OR** ▪ a 'trial and improvement' method, eg 30 × 5 – 60 = 90 10 × 5 – 60 = –10 20 × 5 – 60 = 40 **OR** ▪ 5x – 60 = x x = wrong answer	***Up to 2m*** U1	*Calculation must be performed for the award of **ONE** mark.* *A 'trial and improvement' method must show evidence of improvement, but a final answer need not be reached for the award of **ONE** mark.*

Key Stage 2: 2004 Paper B

1.

11	Award **TWO** marks for the correct answer of 384 If the answer is incorrect, award **ONE** mark for evidence of appropriate method, eg $7 + 5 + 4 = 16$ 16×24 **OR** 7×24 5×24 $+ 4 \times 24$	***Up to 2m***	*Answer need not be obtained for the award of **ONE** mark.*

Key Stage 2: 2004 Paper B

2.

20	A = **10** B = **0** **OR** A = **8** B = **3** **OR** A = **4** B = **9** **OR** A = **2** B = **12** **OR** A = **0** B = **15**	***1m*** U1	*Answers must be whole numbers.* *Accept negative numbers, eg A = 12 and B = –3* ***Do not** accept A = 6 and B = 6*

Key Stage 2: 2004 Paper B

3.

24	Award **TWO** marks for the correct answer of 2.4 If the answer is incorrect, award **ONE** mark for evidence of appropriate method, eg $6 \times 8 = 48$ (48g fibre in one loaf) $48 \div 20$ **OR** $800 \div 20 = 40$ (one slice weighs 40g) 6% of 40	***Up to 2m***	*Answer need not be obtained for the award of **ONE** mark.*

Key Stage 2: 2005 Paper A

1.

24	Award **TWO** marks for the correct answer of 42 If the answer is incorrect, award **ONE** mark for evidence of appropriate working, eg 18 – 10 = 8 10 + (4 × 8) = wrong answer **OR** 10, 18, 26, 34, wrong answer	***Up to 2m*** U1	*Calculation must be performed for the award of **ONE** mark.*

Key Stage 2: 2005 Paper B

1.

19	Award **TWO** marks for the correct answer of 8 If the answer is incorrect, award **ONE** mark for evidence of an appropriate method, eg 1 + 2 + 3 = 6 24 ÷ 6 = 4 4 × 2 **OR** 6 fruits 2 oranges 12 fruits 4 oranges 18 fruits 6 oranges 24 fruits wrong answer	***Up to 2m***	*Answer need not be obtained for the award of **ONE** mark.*

Key Stage 2: 2005 Paper B

2.

25	Award **TWO** marks for the correct answer of 0.15 If the answer is incorrect, award **ONE** mark for evidence of appropriate method, eg 45 – 12 = 33 33 ÷ 220	***Up to 2m***	*Accept equivalent fractions, eg $\frac{3}{20}$* *Accept for **ONE** mark 0.015 **OR** 15 **OR** 1.5 **OR** 150 as evidence of appropriate method.* *Answer need not be obtained for the award of **ONE** mark.*

Key Stage 2: 2006 Paper A

1.

4a	4	***1m***	
4b	150	***1m***	

Key Stage 2: 2006 Paper A

2.

7a	Boxes ticked as shown: ☑ ☐ ☑	***1m*** (U1)	*Accept alternative unambiguous indications such as **Y** or **N**.*
7b	Boxes ticked as shown: ☑ ☑ ☐	***1m*** (U1)	*Accept alternative unambiguous indications such as **Y** or **N**.*

Key Stage 2: 2006 Paper A

3.

9	Award **TWO** marks for the correct answer of 5 If the answer is incorrect, award **ONE** mark for evidence of appropriate working, eg 5 × 25 = 125 12 × 10 = 120 125 – 120 = wrong answer	***Up to 2m***	*Calculation must be performed for the award of **ONE** mark.*

Key Stage 2: 2006 Paper A

4.

23	Award **TWO** marks for all three numbers, as shown: 94, 95, 96 If the answer is incorrect, award **ONE** mark for: ■ two numbers correct and none incorrect **OR** ■ three numbers correct and one incorrect **OR** ■ 93, 94, 95, 96, 97	***Up to 2m*** (U1)	*Accept numbers written in any order.* *All three numbers and no incorrect numbers must be given for the award of **TWO** marks.*

Key Stage 2: 2006 Paper B

1.

10	Numbers circled as shown: 30 40 50 **60** **70**	***1m***	*Accept alternative unambiguous indications, eg numbers ticked, crossed or underlined.*

Key Stage 2: 2006 Paper B

2.

19	Award **TWO** marks for the correct answer of 30 If the answer is incorrect, award **ONE** mark for evidence of appropriate method, eg 45 ÷ 3 = 15 15 × 2	***Up to 2m***	*Answer need not be obtained for the award of **ONE** mark.*

Key Stage 2: 2006 Paper B

3.

25	Award **TWO** marks for the correct answer of 14 If the answer is incorrect, award **ONE** mark for evidence of appropriate method, eg 17.5 × 4 = 70 70 ÷ 5	***Up to 2m*** U1	*Accept for **ONE** mark 140 **OR** 1.4 as evidence of appropriate method.* *Answer need not be obtained for the award of **ONE** mark.*

Key Stage 2: 2007 Paper A

1.

21	Award **TWO** marks for the correct answer of 75 If the answer is incorrect, award **ONE** mark for evidence of appropriate working, eg 50 ÷ 2 × 3 = wrong answer	***Up to 2m*** U1	*Working must be carried through to reach an answer for the award of **ONE** mark.*

Key Stage 2: 2007 Paper B

1.

9a	5	***1m***	
9b	13	***1m***	

Key Stage 2: 2008 Paper A

1.

8a	32	***1m***	
8b	11	***1m***	
8c	40	***1m***	

Key Stage 2: 2008 Paper A

2.

21	Award **TWO** marks for the correct answer of 80 If the answer is incorrect, award **ONE** mark for evidence of appropriate working, eg: ■ 60 ÷ 3 × 4 = wrong answer **OR** ■ 40 + 20 = 60 40 × 2 = wrong answer **OR** ■ a 'trial and improvement' method, eg $(\frac{1}{2} \times 60) + (\frac{1}{4} \times 60) = 45$ $(\frac{1}{2} \times 120) + (\frac{1}{4} \times 120) = 90$ $(\frac{1}{2} \times 100) + (\frac{1}{4} \times 100) = 75$ **OR** ■ $\frac{1}{2}x + \frac{1}{4}x = 60$ $\frac{3}{4}x = 60$ x = wrong answer	***Up to 2m*** U1	*Working must be carried through to reach an answer for the award of **ONE** mark.* *A 'trial and improvement' method must show evidence of improvement, but a final answer need not be reached for the award of **ONE** mark.*

Key Stage 2: 2008 Paper B

1.

14	Award **TWO** marks for the correct answer of 76 If the answer is incorrect, award **ONE** mark for evidence of appropriate method, eg 44 × 2 = 88 88 – 12	***Up to 2m***	*Answer need not be obtained for the award of **ONE** mark.*

Key Stage 2: 2008 Paper B

2.

18	Award **TWO** marks for the correct answer of 13 If the answer is incorrect, award **ONE** mark for evidence of appropriate method, eg 500 ÷ 15 = 33 500 ÷ 25 = 20 33 – 20	***Up to 2m***	*Award **ONE** mark for an answer of $13\frac{1}{3}$ **OR** $13.\dot{3}$ **OR** 13.3 **OR** 13.33, etc.* *Award **ONE** mark for sight of 20 **AND** 33 with no evidence of an incorrect method.* *Answer need not be obtained for the award of **ONE** mark.*

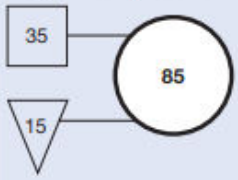
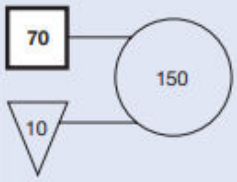
Key Stage 2: 2008 Paper B

3.

23a	33	***1m***	*Accept 3 × 11*
23b	16	***1m*** U1	*Accept 19 – 3*

Key Stage 2: 2009 Paper A

1.

4a	Diagrams completed as shown: 	**1m**	
4b		**1m** U1	

Key Stage 2: 2009 Paper A

2.

6a	3	**1m**	
6b	Award **TWO** marks for the correct answer of 200 If the answer is incorrect, award **ONE** mark for evidence of appropriate working, eg: ■ 60 + 60 = 120 20 + 20 + 20 + 20 = 80 120 + 80 = wrong answer **OR** ■ (60 × 2) + (20 × 4) = wrong answer	**Up to 2m**	Working must be carried through to reach an answer for the award of **ONE** mark.

Key Stage 2: 2009 Paper B

1.

4a	4	**1m**	
4b	23	**1m**	

Key Stage 2: 2009 Paper B

2.

14	Two numbers, x **AND** y where $y = 10\,(x + 1)$ eg, **1** **AND** **20** **OR** **3** **AND** **40** **OR** **10** **AND** **110**	**1m**	The second number is ten more than ten times the first number.

Key Stage 2: 2009 Paper B

3.

22a	40	**1m**	
22b	Award **TWO** marks for the correct answer of 250 If the answer is incorrect, award **ONE** mark for evidence of appropriate method, eg: ■ $500 \div 2 \times 5 = 1250$ $1250 - 1000$ **OR** ■ $\frac{1}{2}$ litre 2 smoothies 1 litre 4 smoothies $1\frac{1}{4}$ litres 5 smoothies $1\frac{1}{4} - 1 = \frac{1}{4}$ $\frac{1}{4} \times 1000$	**Up to 2m**	Accept for **ONE** mark an answer of $\frac{1}{4}$ litre **OR** sight of $\frac{1}{4}$ litre with no evidence of an incorrect method. Accept for **ONE** mark an answer of 1250 **OR** sight of 1250 with no evidence of an incorrect method. Answer need not be obtained for the award of **ONE** mark.

Key Stage 2: 2010 Paper A

1.

25	Award **TWO** marks for the correct answer of 23 If the answer is incorrect, award **ONE** mark for evidence of appropriate working, eg $2 \times 2 = 4$ $4 + 5 = 9$ $9 \times 2 = 18$ $18 + 5$ = wrong answer	**Up to 2m** U1	Working must be carried through to reach an answer for the award of **ONE** mark.

Key Stage 2: 2010 Paper B

1.

13	Award **TWO** marks for the correct answer of 99 If the answer is incorrect, award **ONE** mark for evidence of appropriate method, eg 36 – 25 = 11 11 × 9 **OR** (36 – 25) × 9	**Up to 2m**	Answer need not be obtained for the award of **ONE** mark.

Key Stage 2: 2010 Paper B

2.

15a	16	**1m**	
15b	46p	**1m**	

Key Stage 2: 2010 Paper B

3.

18	Award **TWO** marks for the correct answer of 45 If the answer is incorrect, award **ONE** mark for evidence of appropriate method, eg: ■ 70 ÷ 2 = 35 80 – 35 **OR** ■ 80 – 70 = 10 70 ÷ 2 = 35 35 + 10 **OR** ■ 80 + 80 = 160 160 – 70 = 90 90 ÷ 2 **OR** ■ 80 + 80 + 70 = 230 230 ÷ 2 = 115 115 – 70	**Up to 2m** U1	Answer need not be obtained for the award of **ONE** mark. *Sarah and Amy must weigh the same ...* *Liam must weigh 10kg more than Sarah ...* *Add the bottom two rows and subtract the top ...* *Add all three rows and halve the total ...*

Key Stage 2: 2011 Paper A L6

1.

3	**2m** ***or*** **1m** U1	16 8 or Answer of 17 with $\frac{50}{3}$ or equivalent seen (the only error is to fail to subtract 1 at the start) or Shows understanding of a correct method even if there are computational errors eg • $\frac{2}{3} \times 24 = 12$	× ***Answer of 17 without*** $\frac{50}{3}$ ***or equivalent seen***

Key Stage 2: 2011 Paper A L6

2.

5	**2m** ***or*** **1m**	Gives all three correct values, ie $a = 16, b = 8, c = 6$ Gives at least one correct value or Gives three values that satisfy the second and third equations eg • $a = 18, b = 6, c = 8$ (satisfies $a + b = 24$ and $b + c = 14$: note that $a - c = 10$)	

Key Stage 2: 2011 Paper A L6

3.

13	**1m** U1	19	

Key Stage 2: 2011 Paper A

1.

6a	54	**1m**	
6b	63	**1m**	

Key Stage 2: 2011 Paper B

1.

13	Award **TWO** marks for the correct answer of 75 If the answer is incorrect, award **ONE** mark for evidence of appropriate method, eg: ■ 30 × 50 = 1500 1500 ÷ 20 **OR** ■ 30 × 50p = £15 5 20p coins make £1 5 × 15 **OR** ■ 50p ÷ 20p = 2.5 30 × 2.5	**Up to 2m**	Answer need not be obtained for the award of **ONE** mark.

Key Stage 2: 2011 Paper B

2.

19	Award **TWO** marks for the correct answer of 16 If the answer is incorrect, award **ONE** mark for evidence of appropriate method, eg: ■ 56 ÷ 7 = 8 2 × 8 **OR** ■ 7 quarter-circles 2 triangles 14 quarter-circles 4 triangles 28 quarter-circles 8 triangles 56 quarter-circles …	**Up to 2m**	Answer need not be obtained for the award of **ONE** mark.

Key Stage 2: 2012 Paper A

1.

4a	Award **TWO** marks for the correct answer of 26 If the answer is incorrect, award **ONE** mark for evidence of appropriate working, eg: ■ 12 + 25 + 17 = 54 80 – 54 = wrong answer **OR** ■ 80 – 12 – 25 –17 = wrong answer	**Up to 2m**	Working must be carried through to reach an answer for the award of **ONE** mark.
4b	£6	**1m**	

Key Stage 2: 2012 Paper A

1.

21	Award **TWO** marks for the correct answer of Mina **14** Kirsty **9** Seb **7** If the answer is incorrect, award **ONE** mark for: ■ two numbers correct **OR** ■ 14 **AND** 9 **AND** 7 with some or all attributed to the wrong child **OR** ■ evidence of appropriate working, eg 30 – 5 + 2 = 27 Kirsty = 27 ÷ 3 = wrong answer Mina = wrong answer + 5 Seb = wrong answer – 2 **OR** ■ a 'trial and improvement' method, eg 10 + 5 + 3 = 18 20 + 15 + 13 = 48 15 + 10 + 8 = 33	**Up to 2m** U1	Working must be carried through to reach an answer for the award of **ONE** mark. A 'trial and improvement' method must show evidence of improvement, but a final answer need not be reached for the award of **ONE** mark.

Key Stage 2: 2012 Paper A

2.

24	Award **TWO** marks for the correct answer of 24 If the answer is incorrect, award **ONE** mark for evidence of appropriate working, eg: ■ 18 ÷ 3 × 4 = wrong answer **OR** ■ 18 ÷ 3 = 6 6 + 18 = wrong answer **OR** ■ a 'trial and improvement' method, eg 18 girls + 14 boys = 32 32 ÷ 4 = 8 18 girls + 10 boys = 28 28 ÷ 4 = 7 18 girls + 4 boys = 22 22 ÷ 4 =	**Up to 2m** U1	Working must be carried through to reach an answer for the award of **ONE** mark. A 'trial and improvement' method must show evidence of improvement, but a final answer need not be reached for the award of **ONE** mark.

Key Stage 2: 2012 Paper B

1.

15	Award **TWO** marks for the correct answer of 37p. If the answer is incorrect, award **ONE** mark for evidence of appropriate method, eg 24p × 2 = 48p £1.59 – 48p = £1.11 £1.11 ÷ 3	**Up to 2m**	Accept for **ONE** mark £37 **OR** £37p **OR** 0.37p as evidence of appropriate method. Answer need not be obtained for the award of **ONE** mark.

Key Stage 2: 2012 Paper B

3.

17	Award **TWO** marks for the correct answer of 80 If the answer is incorrect, award **ONE** mark for evidence of appropriate method, eg: ■ 60 ÷ 3 = 20 20 × 4 **OR** ■ 3 red 4 white 30 red 40 white 60 red...	**Up to 2m**	Answer need not be obtained for the award of **ONE** mark.

Key Stage 2: 2012 Paper B

4.

23	Two numbers where the value of ***k*** is four times the value of ***j***, eg When ***j*** is **5** then ***k*** is **20** **OR** When ***j*** is **11** then ***k*** is **44**	**1m**	

Key Stage 2: 2013 Paper A L6

1.

9	10 Shows or implies a complete correct method, eg: • 100 – (15 + 75) • No salad, 100 – 75 = 35 *(error)* Cheese without salad, 35 – 15 • Tuna with salad, 75 – 30 = 45 Tuna, 45 + 15 = 55 *(error)* Cheese, 100 – 55 = 45 Cheese without salad, 45 – 30 = 5 *(error)* •	**2m** ***or*** **1m**	

	salad	no salad	
cheese	30	*error*	
tuna	45	15	
	75	25	100

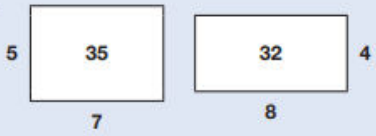
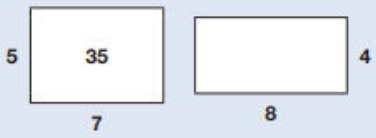
Key Stage 2: 2013 Paper A L6

2.

10	9.6 or equivalent, eg: • 9.60 Shows or implies the correct scale factor, eg: • ×3 seen • 13.5 ÷ 4.5 = 3 • 3.2 + 3.2 + 3.2 • 1 : 3 **OR** Shows the digits 96 **OR** Shows or implies a complete correct method, eg: • 13.5 ÷ 4.5 × 3.2 • 2.10 *(error)* 4.5 ⟌ 13.5 3.2 × 2.10 = 6.4 *(error)*	**2m** ***or*** **1m**	**!**	***Measures*** See guidance (page 7)

Key Stage 2: 2013 Paper B L6

1.

8	Indicates No **and** gives a correct explanation that includes indicating two different areas, eg: • A rectangle with sides 6cm by 2cm has a perimeter of 16cm and an area of 12cm^2 but a rectangle with sides 5cm and 3cm has the same perimeter of 16cm but it has an area of 15cm^2 which is different so she is not correct • A square with sides 3cm by 3cm and a rectangle with sides 4cm by 2cm have the same perimeter of 12cm but they have different areas of 9cm^2 and 8cm^2	1m	✓ ***Minimally acceptable explanation,*** eg: • 6 × 2 = 12, 5 × 3 = 15 •  ! ***Ignore any incorrect units given in an otherwise correct explanation,*** eg: • 6^2 for 6cm^2 ! ***Indicates Yes, or no decision made, but explanation clearly correct*** Condone, provided the explanation is more than minimal ✗ ***Incomplete or incorrect explanation,*** eg: • 6 × 2, 5 × 3 • Two rectangles, one with sides 6cm by 5cm and one with sides 8cm by 3cm have the same perimeter of 22cm but they don't have the same area • 

Key Stage 2: 2013 Paper A

1.

24	Award **TWO** marks for the correct answer of cake **40 p** **AND** biscuit **25 p** If the answer is incorrect, award **ONE** mark for: ■ answers reversed, ie: cake = 25p **AND** biscuit = 40p **OR** ■ one of the two costs correct **OR** ■ for evidence of appropriate working, eg cost of cake + biscuit + biscuit = 90p cake = biscuit + 15p 90p – 15p = 75p 75p ÷ 3 + 15p = wrong answer	**Up to 2m** U1	Accept for **ONE** mark 0.40p **OR** £40 **AND** 0.25p **OR** £25 as evidence of appropriate working. Working must be carried through to reach an answer for the award of **ONE** mark.

Key Stage 2: 2013 Paper B

1.

18	2 9 × 6 9 = 2001	1m U1	Numbers may be given in either order.

Key Stage 2: 2013 Paper B

1.

22	Award **TWO** marks for the correct answer of 16 If the answer is incorrect, award **ONE** mark for evidence of an appropriate method, eg 45 ÷ 1.25 = 36 45 ÷ 2.25 = 20 36 – 20	Up to 2m	Answer need not be obtained for the award of **ONE** mark.

Key Stage 2: 2014 Paper B L6

1.

1a	$n + 3$ **or** $3 + n$	1m	! ***Algebra*** See guidance (page 9) ! ***Alternative letter used,*** eg, for part (a), accept m used instead of n, if the expression is otherwise correct: • $m + 3$
1b	$2m - 5$	1m	! ***Condone unsimplified or unconventional algebra,*** eg, for part (b): • $m + m - 5$ • $m2 - 5$

Key Stage 2: 2014 Paper A

1.

20	Award **TWO** marks for the correct answer of 1.05kg If the answer is incorrect, award **ONE** mark for evidence of appropriate working, eg: ■ 12 ÷ 4 = 3 350 × 3 = 1050 1050 ÷ 1000 = wrong answer	Up to 2m	**Do not** accept 1050g Accept for **ONE** mark 10.5 or 105 as evidence of appropriate working. Working must be carried through to reach an answer for the award of **ONE** mark.

Key Stage 2: 2014 Paper B

1.

5a **5b**	43 Award **TWO** marks for the correct answer of 24 If the answer is incorrect, award **ONE** mark for evidence of appropriate working, eg: ■ 77 – 18 – 35 = wrong answer **OR** ■ 35 + 18 = 53 77 – 53 = wrong answer	**1m** **Up to 2m**	Working must be carried through to reach an answer for the award of **ONE** mark.

Key Stage 2: 2014 Paper B

2.

14a	A 50 B **15** C **20** D **25**	**1m**	
14b	A **110** B **45** C 50 D **55**	**1m** U1	

Key Stage 2: 2014 Paper B

3.

19	Award **TWO** marks for the correct answer of 45 **AND** 35 If the answer is incorrect, award **ONE** mark for: ■ either 35 **OR** 45 **OR** ■ evidence of appropriate working, eg 80 – 10 = 70 70 ÷ 2 = 35 35 + 10 = wrong answer	**Up to 2m** U1	Numbers may be given in either order. Working must be carried through to reach an answer for the award of **ONE** mark.

Key Stage 2: 2015 Paper B L6

1.

4	35 Shows or implies a complete correct method, eg: • (670 – 250) ÷ 12 • 670 = 250 + 12*n* 12*n* = 670 – 250 12*n* = 430 *(error)* *n* = 430 ÷ 12 = 25.8 *(error)*	**2m** ***or*** **1m**	! ***Inconsistent units*** Within an otherwise correct method, condone eg, for 1 mark accept (£6.70 – 250) ÷ 12 ! ***Condone correct embedded solutions*** Award 1 mark, for a response which shows 35 as the embedded solution to their working

Key Stage 2: 2015 Paper B L6

2.

10a	400 Shows or implies a complete correct method, eg: • 30% – 25% = 5% 5% = 20 100% = 20 × 20	**2m** ***or*** **1m**	
10b	111.6 **or** 112	**1m**	✗ 111

Key Stage 2: 2015 Paper B

1.

12	Award **TWO** marks for the correct answer of 60 If the answer is incorrect, award **ONE** mark for evidence of appropriate working, eg: ■ Ate 10, gave away 5 Ate 40, gave away 20 Ate 40 + 20 = wrong answer ■ 40 ÷ 10 = 4 4 × 5 = 20 20 + 40 = wrong answer	**Up to 2m** U1	Working must be carried through to reach an answer for the award of **ONE** mark.

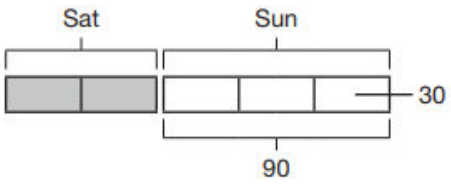
Key Stage 2: 2016 Paper 2 Reasoning - Sample

1.

2	Award **TWO** marks for the correct answer of 122 If the answer is incorrect, award **ONE** mark for evidence of an appropriate method, e.g. • 4 × 7 = 28 150 – 28	**Up to 2m**	Answer need not be obtained for the award of **ONE** mark.

Key Stage 2: 2016 Paper 2 Reasoning - Sample

2.

20	Award **TWO** marks for the correct answer of 150 pages. If the answer is incorrect, award **ONE** mark for evidence of an appropriate method, e.g. • $\frac{3}{5} = 90$ $9 \div 3 = 30$ 30×5 **OR** •  30×5	**Up to 2m**	Answer need not be obtained for the award of **ONE** mark.

Key Stage 2: 2016 Paper 3 Reasoning - Sample

1.

10	Award **TWO** marks for the correct answer of 25p or £0.25 If the answer is incorrect, award **ONE** mark for evidence of an appropriate method, e.g. • Lemons £1 ÷ 5 = 20p each Oranges £1.80 ÷ 4 = 45p each 45p – 20p	**Up to 2m**	Answer need not be obtained for the award of **ONE** mark.

Key Stage 2: 2016 Paper 3 Reasoning - Sample

2.

16	Award **TWO** marks for the correct answer of 96 If the answer is incorrect, award **ONE** mark for evidence of an appropriate method, e.g. • $10.5 \times 2 = 21$ $21 + 11 = 32$ 32×3	**Up to 2m**	Answer need not be obtained for the award of **ONE** mark.

Key Stage 2: 2016 Paper 2 Reasoning

1.

13	Award **TWO** marks for the correct answer of 119 If the answer is incorrect, award **ONE** mark for evidence of an appropriate method, e.g. • 140 ÷ 20 = 7 3 × 7 = 21 140 – 21 **OR** • 140 ÷ 20 = 7 20 – 3 = 17 17 × 7	**Up to 2m**	Answer need not be obtained for the award of **ONE** mark.

Key Stage 2: 2016 Paper 3 Reasoning

1.

6	Award **TWO** marks for the correct answer of 1.07 If the answer is incorrect, award **ONE** mark for evidence of an appropriate method, e.g. • 1.28 + 1.65 = 2.93 4 – 2.93 **OR** • 4 – 1.28 = 2.72 2.72 – 1.65 **OR** • 4 – 1.65 = 2.35 2.35 – 1.28	**Up to 2m**	Accept for **ONE** mark an answer of 107 metres as evidence of an appropriate method. Answer need not be obtained for the award of **ONE** mark.

Key Stage 2: 2016 Paper 3 Reasoning

2.

11	Award **TWO** marks for the correct answer of 2,970 If the answer is incorrect, award **ONE** mark for evidence of an appropriate method with no more than one arithmetic error, e.g. • 11 × 6 = 66 66 × 45	**Up to 2m**	**Do not** accept sight of a correct multiplication only, e.g. 11 × 6 × 45, for **ONE** mark. Misreads are **not** allowed.

Key Stage 2: 2016 Paper 3 Reasoning

3.

16	Award **TWO** marks for the correct answer of 3 If the answer is incorrect, award **ONE** mark for evidence of an appropriate method, e.g. • 2.5 × 6 = 15 15 ÷ 5	**Up to 2m**	Answer need not be obtained for the award of **ONE** mark. Misreads are **not** allowed.

Key Stage 2: 2017 Paper 2 Reasoning

1.

8	Award **TWO** marks for the correct answer of 1,048 If the answer is incorrect, award **ONE** mark for evidence of an appropriate method, e.g. • 1,793 + 8,728 = 10,521 10,521 – 9,473 **OR** • 9,473 – 8,728 = 745 1,793 – 745	**Up to 2m**	Answer need not be obtained for the award of **ONE** mark.

Key Stage 2: 2017 Paper 2 Reasoning

2.

14	18	**1m**	Accept 18:12 **OR** 12:18

Key Stage 2: 2017 Paper 3 Reasoning

1.

12	An explanation that shows Adam has four times as many balloons as Chen, e.g. • 24 × 6 is 4 times as many as 12 × 3 • 144 is four times 36 • 144 ÷ 4 = 36 • 144 ÷ 36 = 4 • 36 × 4 = 144 • Adam buys twice as many bags of twice as many balloons, so it's doubled twice • 24 is double 12 and 6 is double 3, so it's doubled twice • Chen buys half the amount of bags and each bag has half the number of balloons, so he has $\frac{1}{4}$ of the amount.	**1m**	**Do not** accept vague or incomplete explanations, e.g. • Adam buys more bags and there are more balloons in each bag • Adam buys twice as many bags of twice as many balloons • 24 is double 12 and 6 is double 3.

Key Stage 2: 2017 Paper 3 Reasoning

2.

16	Award **TWO** marks for the correct answer of 750 If the answer is incorrect, award **ONE** mark for evidence of an appropriate method, e.g. • 450 × 2 = 900 2,400 – 900 = 1,500 1,500 ÷ 2	**Up to 2m**	Answer need not be obtained for the award of **ONE** mark.

Key Stage 2: 2018 Paper 2 Reasoning

1.

8	Award **TWO** marks for the correct answer of 192 If the answer is incorrect, award **ONE** mark for evidence of an appropriate method, e.g. • 48 × 3 = 144 24 × 2 = 48 144 + 48 = **OR** • 48 + 48 + 48 = 144 24 + 24 = 48 144 + 48 = **OR** • 4 × 48 **OR** • 8 × 24	**Up to 2m**	Answer need not be obtained for the award of **ONE** mark.

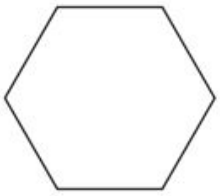
Key Stage 2: 2018 Paper 2 Reasoning

2.

15	Award **TWO** marks for the correct answer of 1800 If the answer is incorrect, award **ONE** mark for evidence of appropriate complete method with no more than one arithmetic error, e.g. • 40 × 15 = 500 *(error)* 500 × 3 = 1500 If no answer is given, the first part of the calculation must be evaluated correctly for the award of **ONE** mark, e.g. • 15 × 3 = 45 45 × 40 = **OR** • 40 × 15 = 600 600 × 3 = **OR** • 40 × 3 = 120 120 × 15 =	**Up to 2m**	**Do not** accept sight of a correct multiplication, e.g. 40 × 15 × 3, for **ONE** mark unless part of the calculation is evaluated correctly. Misreads are **not** allowed.

Key Stage 2: 2018 Paper 2 Reasoning

3.

21a	 = **36**	**1m**	
21b	 = **25**	**1m**	Award **ONE** mark for an answer of • (147 – 2 × answer for box 1) ÷ 3 **OR** • (111 – answer for box 1) ÷ 3 Any follow-through fraction or decimal answer must be expressed as an exact value.

Key Stage 2: 2018 Paper 3 Reasoning

1.

7a	163	**1m**	
7b	2	**1m**	

Key Stage 2: 2018 Paper 3 Reasoning

2.

13	Award **TWO** marks for the correct answer of 40 If the answer is incorrect, award **ONE** mark for evidence of appropriate method, e.g. • 2.6 × 1,000 = 2,600 2,600 ÷ 65 = • 2.6 ÷ 0.065 =	**Up to 2m**	Answer need not be obtained for the award of **ONE** mark. **Do not** accept an incorrect conversion or no conversion of units, e.g. • 260 ÷ 65 = • 2.6 kg ÷ 65 g

Key Stage 2: 2018 Paper 3 Reasoning

3.

20	Award **TWO** marks for the correct answer of 101 If the answer is incorrect, award **ONE** mark for: • sight of 44 **OR** • evidence of appropriate method, e.g. • 31 – 20 = 11 11 × 4 + 57 =	**Up to 2m**	Answer need not be obtained for the award of **ONE** mark.

Key Stage 2: 2019 Paper 2 Reasoning

1.

Qu.	Requirement	Mark	Additional guidance
10	Second box only ticked correctly, as shown: number of tickets × 3 + 24 ☐ number of tickets × 24 + 3 ☑ number of tickets + 3 × 24 ☐ number of tickets + 24 × 3 ☐	1m	Accept alternative unambiguous positive indication of the correct answer, e.g. Y.

Key Stage 2: 2019 Paper 3 Reasoning

1.

19	Award **THREE** marks for the correct answer of 7,174 If the answer is incorrect, award **TWO** marks for: • evidence of an appropriate complete method which contains no more than one arithmetic error, e.g. $\begin{array}{r} 53 \\ \times\ 68 \\ \hline 3504 \end{array}$ *(error)* $\quad\quad \begin{array}{r} 105 \\ \times\ 34 \\ \hline 3570 \end{array}$ 3,504 + 3,570 = 7,074 Award **ONE** mark for: • evidence of an appropriate method with more than one arithmetic error. **OR** • sight of 3,604 as evidence of long multiplication step (68 × 53) completed correctly. **OR** • sight of 3,570 as evidence of long multiplication step (105 × 34) completed correctly.	Up to 3m	Answer need not be obtained for the award of **ONE** mark. A misread of a number may affect the award of marks. No marks are awarded if there is more than one misread or if the mathematics is simplified. **TWO** marks will be awarded if an appropriate method with the misread number is followed through correctly. **ONE** mark will be awarded for evidence of an appropriate method with the misread number followed through correctly with no more than one arithmetic error.

Key Stage 2: 2019 Paper 3 Reasoning

2.

20	Award **TWO** marks for the correct answer of 29 If the answer is incorrect, award **ONE** mark for evidence of an appropriate method, e.g. • 2 × 500 = 1,000 1,000 ÷ 34 = **OR** • 2 × 500 ÷ 34 = **OR** • 500 ÷ 34 = 14 r23 *(error)* 14 r23 × 2 = 28 r46 **OR** • 34 × 10 = 340 34 × 30 = 1,020 Answer = 30 booklets *(error)*	**Up to 2m**	Answer need not be obtained for the award of **ONE** mark. Answer does not need to have been rounded or rounded correctly for the award of **ONE** mark. If a pupil reaches a non-integer answer, for example 28 r2 and expresses it as 28.2 without further working, this is considered a notation error and is condoned. Within an appropriate method, if the pupil's remainder from 500 divided by 34 is less than 17 and this remainder is ignored before doubling, this is acceptable for **ONE** mark. If the pupil's remainder is 17 or more and it has been ignored before doubling, this is **not** acceptable for **ONE** mark. **Do not** accept a trial and improvement method.

Key Stage 2: 2019 Paper 3 Reasoning

3.

23	An explanation that gives the correct values for PQ and/or QR, e.g. • PQ = 640m • QR is 160, 160 times 4 is not 600m •  **OR** An explanation recognising PR is 800m and must be 5 times QR, e.g. • the total distance is 800m. Divide by 5 to give 160 for distance between Q and R, so P and Q is 4 × 160 = 640m (not 600m) • if QR is 200m, then PR is 1000m not 800m • if PQ is 600m then QR is 800 – 600 = 200m. Then PR is 5 × 200 = 1000m but it is only 800m. **OR** An explanation that PQ is not 600m, e.g. • if it was 600m then the shorter distance would be 200m if added to make 800m, 600m is 3 times 200, not 4 times • Olivia is not correct because 600 ÷ 4 = 150 and 600 + 150 doesn't equal 800 • Olivia is not correct because 800 – 600 = 200 and 600 is not 4 times 200	**1m**	**Do not** accept vague, incomplete or incorrect explanations, e.g. • Olivia is not correct because you can't divide 600 by 4 like you can for 800 **Do not** accept explanations which include incorrect mathematics or incorrect information that is relevant to the explanation.