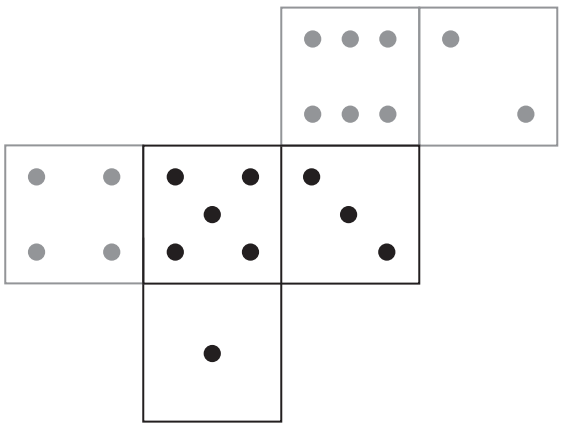
9. Mark schemes for Paper 3: reasoning

Qu.	Requirement	Mark	Additional guidance
1	Award **TWO** marks for three correct numbers, as shown: **35** 42 49 **56** 63 **70** Award **ONE** mark for two numbers correctly placed.	**Up to 2m**	
2	Two combinations, as shown: blue and red **OR** red and blue **AND** white and red **OR** red and white.	**1m**	
3	Digits in correct order, as shown: **2** **7** **4** **3**	**1m**	All digits must be in the correct order for the award of **ONE** mark.
4	Award **TWO** marks for numbers completed, as shown: 5 3 2 **4** 9 + 7 4 2 **7** **6** 0 6 7 6 Award **ONE** mark for any two numbers completed correctly.	**Up to 2m**	

Qu.	Requirement	Mark	Additional guidance
5	Award **TWO** marks for only three correct boxes ticked, as shown: 2 ☑ 3 ☑ 6 ☑ 9 ☐ 12 ☐ Award **ONE** mark for: • only two correct boxes ticked and no incorrect boxes ticked **OR** • three correct boxes ticked and one incorrect box ticked.	**Up to 2m**	Accept alternative unambiguous positive indications, e.g. Y.
6	Award **TWO** marks for only two correct boxes ticked, as shown: There are more cheetahs than jaguars. ☑ The total number of lions and tigers is 10 ☐ One-quarter of the big cats are cheetahs. ☑ There are more than 5 jaguars. ☐ Award **ONE** mark for: • only one correct box ticked and no incorrect boxes ticked **OR** • two correct boxes ticked and one incorrect box ticked.	**Up to 2m**	Accept alternative unambiguous positive indications, e.g. Y.

Qu.	Requirement	Mark	Additional guidance
7a	163	**1m**	
7b	2	**1m**	
8	£140	**1m**	**Do not** accept 140%
9	108	**1m**	
10	(-3,1)	**1m**	**Do not** accept (3-, 1)
11	Award **TWO** marks for a correct answer of 275 **OR** an answer in the range from 270 to 280 inclusive. If the answer is incorrect, award **ONE** mark for evidence of appropriate method, e.g. • 150 + 175 = 325 600 – 325 = **OR** • 600 – 150 – 165 *(error)* =	**Up to 2m**	Answer need not be obtained for the award of **ONE** mark. Accept a reading in the range 170 to 180 ml inclusive for the second jug. At least one of the measurements must be correct for the award of **ONE** mark.
12	24	**1m**	
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

Qu.	Requirement	Mark	Additional guidance
14	An explanation showing an understanding: • that this specific triangle has angles 70, 70 and 40 **OR** • of the properties of an equilateral triangle – all angles are equal (60°) and therefore that this triangle cannot be equilateral, e.g. • The angles aren't 60° • There is not a 60° angle • It has two different angles (70° and 40°) so it can't be equilateral • The angles aren't the same • An equilateral triangle has 60° + 60° + 60° • All the angles are the same in an equilateral triangle • It's an isosceles triangle. (In the context of this question, the term isosceles triangle is treated as not including equilateral triangles as a special type, as the national curriculum does not specify this at key stage 2.)	**1m**	**Do not** accept vague or incomplete explanations, e.g. • The other angle is 70° • They aren't (all) the same. *(No reference to angles)* • An equilateral triangle has equal angles. *(Does not say all.)* **Do not** accept explanations which include incorrect mathematics or incorrect information that is relevant to the explanation, e.g. • 40 + 70 = 110 + 70 = 180
15a	£3.05	**1m**	Refer to page 13 for additional guidance on marking answers involving money.
15b	Award **TWO** marks for the correct answer of 6 If the answer is incorrect, award **ONE** mark for evidence of an appropriate method, e.g. • £5 – £1.25 = £3.75 £3.75 ÷ 60p = 6.25 7 colours *(rounded incorrectly)* **OR** • £5 – £1.25 = £4.75 *(error)* 475 ÷ 60 = **OR** • 6 × 60 = 360 £3.60 + £1.25 = £4.85 7 colours *(rounded incorrectly)*	**Up to 2m**	Answer need not be obtained for the award of **ONE** mark.

Qu.	Requirement	Mark	Additional guidance
16	Award **TWO** marks for the correct answer of 184 If the answer is incorrect, award **ONE** mark for: • sight of 92 **OR** • evidence of appropriate method, e.g. • $\frac{1}{3} \times 276 = 92$ $92 \times 2 =$ • $276 \div 3 = 92$ $276 - 92 =$	**Up to 2m**	Answer need not be obtained for the award of **ONE** mark.
17	Net completed, as shown: 	**1m**	Accept unconventional arrangements of the dots, provided the intended number is clear and correct. Accept numbers instead of dots.

Qu.	Requirement	Mark	Additional guidance
18	Award **TWO** marks for the correct answer of $\frac{1}{12}$ or an equivalent fraction. If the answer is incorrect, award **ONE** mark for: • sight of $\frac{11}{12}$ **OR** • evidence of appropriate method, e.g. • $\frac{2}{3} + \frac{1}{4}$ $\frac{8}{12} + \frac{3}{12} = \frac{10}{12}$ *(error)* $1 - \frac{10}{12} =$ • $1 - \frac{2}{3} - \frac{1}{4} =$	**Up to 2m**	Answer need not be obtained for the award of **ONE** mark.
19	Award **TWO** marks for numbers completed, as shown: 354 × 9.5 = **3,363** 3,540 × 95 = **336,300** 3,363 ÷ 95 = **35.4** Award **ONE** mark for any two numbers completed correctly.	**Up to 2m**	**Do not** accept transcription errors or misreads for this question.
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.

Qu.	Requirement	Mark	Additional guidance
21a	57 min 15 sec	**1m**	The answer is a time interval (see page 14 for guidance).
21b	44 min 40 sec	**1m**	