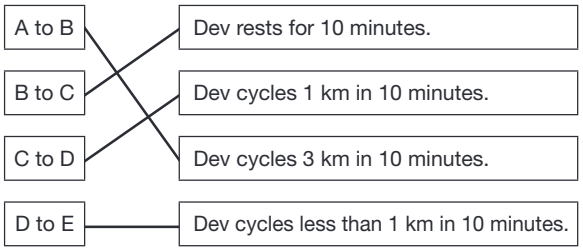
8. Mark schemes for Paper 2: reasoning

Qu.	Requirement	Mark	Additional guidance
1	Correct response circled, as shown: 9,206,499 **(9,215,300)** 9,206,504 9,215,298 9,206,909	1m	Accept alternative unambiguous positive indication of the correct answer.
2	5	1m	
3	30,000	1m	
4a	Emma	1m	Accept unambiguous abbreviations, e.g. E, or recognisable misspellings. Accept 1,400 for the award of the mark.
4b	Olivia	1m	Accept unambiguous abbreviations, e.g. O, or recognisable misspellings. Accept 1,220 for the award of the mark.
5	2,300	1m	
6	2.25	1m	Refer to section 6.3 on page 16 for additional guidance on marking answers involving measures.
7	$\frac{6}{10}$	1m	Accept equivalent fractions and decimals, e.g. $\frac{3}{5}$ and 0.6 **Do not** accept 60%
8	Correct answer circled, as shown: $\frac{5}{8}$ $\frac{14}{8}$ **($\frac{19}{8}$)** $\frac{23}{8}$ $\frac{26}{8}$	1m	Accept alternative unambiguous positive indication of the correct answer.
9	52	1m	

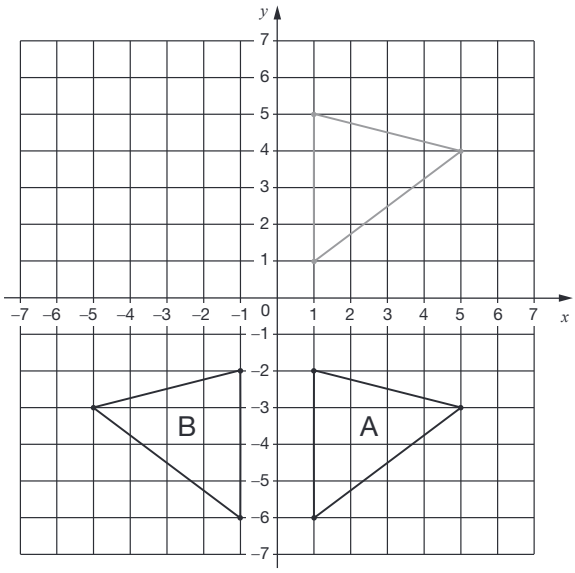
Qu.	Requirement	Mark	Additional guidance
10	Award **TWO** marks for the correct answer of (£)2.85 If the answer is incorrect, award **ONE** mark for evidence of an appropriate method, e.g. • 190 ÷ 2 = 85 *(error)* 190 + 85 **OR** • 1.90 × 1.5	**Up to 2m**	Answer need not be obtained for the award of **ONE** mark. Accept for **ONE** mark an answer of (£)285 **OR** £285p as evidence of an appropriate method. Refer to section 6.1 on pages 14 and 15 for additional guidance on marking answers involving money.
11	Award **ONE** mark for both numbers correct, as shown: $\frac{3}{10} = \frac{\boxed{6}}{20}$ $\frac{12}{15} = \frac{4}{\boxed{5}}$	**1m**	
12	Masses in correct order, as shown: **2 kg** **1500 g** **1.4 kg** **300 g** **heaviest** **OR** Accept correct conversions, e.g. 2000g 1500g 1400g 300g **OR** 2000 1500 1.4 300	**1m**	Misreads and transcription errors are **not** allowed. Accept with correct units or without units. Accept masses written in reverse order **AND** the label heaviest changed to follow suit.

Qu.	Requirement	Mark	Additional guidance
13	Award **ONE** mark for each part of Dev's journey matched with the correct sentence, as shown:  	1m	Lines need not touch the boxes, provided the intention is clear. **Do not** accept any part of the journey which has been matched to more than one sentence.
14	50	1m	
15	Award **TWO** marks for all four signs correct, as shown: $1 \times 2 \times 3$ **=** $1 + 2 + 3$ $2 \times 2 \times 2$ **>** $2 + 2 + 2$ $1 \times 10 \times 10$ **>** $1 + 10 + 10$ $0 \times 10 \times 10$ **<** $0 + 10 + 10$ If the answer is incorrect, award **ONE** mark for three signs placed correctly.	Up to 2m	Accept unambiguous drawings of the correct signs.
16	Award **ONE** mark for two boxes ticked correctly, as shown: 28.07 ☐ 28.65 ✓ 28.71 ✓ 28.75 ☐ 28.97 ☐	1m	Accept alternative unambiguous positive indication of the correct answer, e.g. Y.

Qu.	Requirement	Mark	Additional guidance
17	9 **OR** 12 **OR** 18 **OR** 36	**1m**	Award **ONE** mark for more than one correct answer given and no incorrect answers.
18	Award **TWO** marks for the correct answer of 821 If the answer is incorrect, award **ONE** mark for evidence of an appropriate method, e.g. • 800 × 2 = 1600 511 + 268 = 779 1600 – 779 **OR** • 800 – 511 = 289 800 – 268 = 542 *(error)* 542 + 289 **OR** • 800 – 511 – 268 = 23 *(error)* 800 + 23	**Up to 2m**	Answer need not be obtained for the award of **ONE** mark.
19	15	**1m**	Refer to section 6.3 on page 16 for additional guidance on marking answers involving measures.
20	Award **TWO** marks for the correct answer of 12 If the answer is incorrect, award **ONE** mark for evidence of an appropriate complete method with no more than one arithmetic error, e.g. • 16 × 15 = 210 *(error)* 10 × 18 = 180 210 + 180 = 390 432 – 390 = 42 **OR** Award **ONE** mark for sight of 420 (as evidence of the sum of the two correct products).	**Up to 2m**	Misreads are **not** allowed.

Qu.	Requirement	Mark	Additional guidance
21a	16	**1m**	
21b	30	**1m**	If the answer to part b is incorrect, award **ONE** mark for an answer of: • (200 – 5n) ÷ 4 Where n represents the answer to part a of the question, the value of n **must** be between 12 and 18 (inclusive). Any follow-through fraction or decimal answer must be expressed as an exact value.
22	Award **TWO** marks for the correct answer of 4,200 If the answer is incorrect, award **ONE** mark for evidence of an appropriate method, e.g. • 750 ÷ 250 = 3 1,150 + 250 = 1,400 1,400 × 3 **OR** • 750 ÷ 250 = 3 1,150 × 3 = 3,350 *(error)* 3,350 + 750 Award **ONE** mark for sight of 3450, 3.45 **OR** 3.450 (as evidence of correctly calculating how much yellow paint is required).	**Up to 2m**	Answer need not be obtained for the award of **ONE** mark.

Qu.	Requirement	Mark	Additional guidance
23	Award **TWO** marks for the correct answer of 30 If the answer is incorrect, award **ONE** mark for evidence of an appropriate method, e.g. • 1.25kg – 1.1kg = 0.05kg *(error)* 1100g – 920g = 180g 180 – 50 = 130g **OR** Award **ONE** mark for the correct weight of the banana and the orange, e.g. 0.15(kg) **AND** 180(g)	**Up to 2m**	Accept for **TWO** marks 0.03kg for final answer in working and the answer box blank **OR** 0.03 in the answer box where the grams has been replaced with kilograms. Accept for **ONE** mark 0.03 (g) in the answer box **OR** as the final answer in working and answer box blank. Answer need not be obtained for the award of **ONE** mark. Any conversion of units must be correct. **Do not** award the mark for a method that contains an incorrect conversion, e.g. 1.25 – 1.1 = 0.16 *(error)* 1100 – 920 = 180 180 – 16 *(conversion error)*
24	Award **TWO** marks for the correct answer of $x = 75$ **AND** $y = 15$ If the answer is incorrect, award **ONE** mark for evidence of an appropriate method calculating both angles, e.g. • 180 – 30 = 150 150 ÷ 2 = 70 *(error)* 90 – 70 **OR** Award **ONE** mark for either correct x **OR** y.	**Up to 2m**	Answer need not be obtained for the award of **ONE** mark. If there is no evidence of an appropriate method and the values for x **AND** y are incorrect, accept for **ONE** mark $x + y = 90$, unless x is between 65–69 (inclusive) **AND** y is between 21–25 (inclusive).

Qu.	Requirement	Mark	Additional guidance
25	Award **TWO** marks for both triangles correctly drawn, as shown:  Award **ONE** mark for either: • correct triangle A **OR** • correct triangle B **OR** • a correct reflection of an incorrectly translated triangle (maintaining congruency of the original triangle).	**Up to 2m**	Accept slight inaccuracies in drawing provided the intention is clear. (See page 13 for guidance.) Ignore any triangles drawn in the 2nd quadrant, unless it is a correct follow-through of triangle A.