

Question	Answer	Mark	Comments
1	Alternative method 1		
	$x + x + 19 = 105$ or $\frac{105-19}{2}$ or $\frac{86}{2}$ or 43	M1	oe equation any letter may be implied by second mark
	$\frac{105-19}{2} + 19$ or 62	M1dep	oe 62 seen is M2 (unless clearly from incorrect working)
	$\frac{62}{105}$ or 0.59(0...) or 59.0(0...)%	A1	oe SC2 $\frac{43}{105}$ or 0.41 or 41% or better
	Alternative method 2		
	$y + y - 19 = 105$	M1	oe equation any letter may be implied by second mark
	$\frac{105+19}{2}$ or $\frac{124}{2}$ or 62	M1dep	62 seen is M2 (unless clearly from incorrect working)
	$\frac{62}{105}$ or 0.59(0...) or 59.0(0...)%	A1	oe SC2 $\frac{43}{105}$ or 0.41 or 41% or better
	Alternative method 3		
	$\frac{105}{2}$ and $\frac{19}{2}$ or 52.5 and 9.5	M1	
	their 52.5 + their 9.5 or $105 - (\text{their } 52.5 - \text{their } 9.5)$ or 62	M1dep	62 seen is M2 (unless clearly from incorrect working)
	$\frac{62}{105}$ or 0.59(0...) or 59.0(0...)%	A1	oe SC2 $\frac{43}{105}$ or 0.41 or 41% or better
Additional Guidance is on the next page			

1 cont	Additional Guidance	
	Ignore any attempts to simplify or convert a correct fraction	
	Trial and Improvement leading to 62 (may go on to score full marks)	at least M1M1
	Trial and Improvement not leading to 62 or the correct answer	M0M0A0
	$\frac{19}{105}$ or $\frac{86}{105}$	M0M0A0
	62 : 105 or 62 : 43 or 62% or 62 out of 105	M1M1A0

2	Alternative method 1: total amount of each colour (judgement accepted that ratio is not 4 : 3)		
	$60 \div (2 + 1)$ or 20 or 40	M1	
	$80 + \text{their } 20$ or 100	M1dep	
	$28 + 2 \times \text{their } 20$ or 68	M1dep	dep on first M1 only
	100 and 68 and No	A1	
	Alternative method 2: total of red and how much white should have been added or how much there should have been originally or how much there should be now		
	$60 \div (2 + 1)$ or 20 or 40	M1	
	$80 + \text{their } 20$ or 100	M1dep	
	$\text{their } 100 \div 4 \times 3$ or 75	M1dep	dep on M2
	$(75 - 2 \times 20 =) 35$ and No or 40 and $(75 - 28 =) 47$ and No or 75 and 68 and No	A1	comparing 35 to 28
	Alternative method 3: total of white and how much red should have been added or how much there should have been originally or how much there should be now		
	$60 \div (2 + 1)$ or 20 or 40	M1	
	$28 + 2 \times \text{their } 20$ or 68	M1dep	
	$\text{their } 68 \div 3 \times 4$ or $90\frac{2}{3}$ or $\frac{272}{3}$	M1dep	dep on M2
	$(90\frac{2}{3} - 20 =) 70\frac{2}{3}$ and No or 20 and $(90\frac{2}{3} - 80 =) 10\frac{2}{3}$ and No or $90\frac{2}{3}$ and 100 and No	A1	comparing $70\frac{2}{3}$ to 80
	The scheme for question 29 continues on the next page		

2 cont	Alternative method 4: total of red and what it should be for total amount of paint		
	$60 \div (2 + 1)$ or 20 or 40	M1	
	80 + their 20 or 100	M1dep	
	$(60 + 80 + 28) \div (4 + 3) \times 4$ or 96	M1	
	100 and 96 and No	A1	
	Alternative method 5: total of white and what it should be for total amount of paint		
	$60 \div (2 + 1)$ or 20 or 40	M1	
	$28 + 2 \times$ their 20 or 68	M1dep	
	$(60 + 80 + 28) \div (4 + 3) \times 3$ or 72	M1	
	68 and 72 and No	A1	
	Additional Guidance		
	20 from $80 \div 4$ is incorrect		
	With no incorrect working, 'He should have added 76 red and 32 white' implies full marks	M1M1M1A1	
	'No' can be implied, eg on alt 1 accept 100 and 68 and 'He needs 7 more white'	M1M1M1A1	
	Condone dubious notation eg $20 : 40 + 80 : 28 = 100 : 68$, so No	M1M1M1A1	
	Ignore further work if 100 and 68 and No are seen	M1M1M1A1	
	Only works out the amounts of red and white there should be for the total amount of paint, eg, $168 \div 7 \times 4 = 96$ and $168 \div 7 \times 3 = 72$	M0M0M1A0	

Question	Answer	Mark	Comments
3(a)	3×18 or 54 or $2 \times 18 + 14$ or 50 or $18 + 3 \times 14$ or 60 or 4×14 or 56 or $1 - 0.25$ or 0.75 seen	M1	oe
	$3 \times 18 \times (1 - 0.25)$ or $3 \times 18 \times 0.75$ or 40.5 or $18 \times (1 - 0.25)$ or 18×0.75 or 13.5(0)	M1dep	oe
	40.50	A1	condone £40.50p
	Additional Guidance		
	40.5 on answer line		M1M1A0

Question	Answer	Mark	Comments
3(b)	Should have multiplied 15 by 6 or 90	B1	oe eg 15×6 accept $\frac{240 \times 600}{40 \times 40}$ or $\frac{144000}{1600}$
	Additional Guidance		
	Ignore irrelevant statements alongside a correct answer		
	15 × 6 seen but evaluated incorrectly		B1
	Should have multiplied not added		B1
	Should have multiplied at the end		B1
	Adding was wrong		B1
	He has added		B1
	Times the number for length and width		B1
	Times the length and width		B0
	Calculation at the end is wrong		B0
	Should have multiplied		B0
	Needs to work out the area		B0
	21 is wrong		B0
	Answer is wrong		B0

Q	Answer	Mark	Comments
4	No and correct reason	B1	eg it will still only take 4 hours it will be the same (time) they could do 48 m ² in that time even though it's twice the area there are twice as many people
	Additional Guidance		
	No and there are two people so it won't take as long (as 8h)		B1
	No and it'll be quicker (than 8h)		B1
	No and they'll do 12 m ² each		B1
	No and it'll be the same area each		B1
	No and it'll be the same area		B0
	No and it depends on how fast Steve works		B0
	No and it'll take 6h		B0
	No and it might take them less time		B0

Q	Answer	Mark	Comments
5	$10.74 \div 6 \times 11$ or 1.79 seen	M1	oe eg $2 \times 10.74 - 10.74 \div 6$
	19.69	A1	
	Additional Guidance		
	$6 \div 10.74 = 1.79$ (recovered)		M1
	$6 \div 10.74$		M0

Q	Answer	Mark	Comments
6	Alternative method 1 – working in £		
	Any correct conversion from pence to pounds	B1	may be seen at any stage
	$0.49 \times \frac{400}{100}$ or 0.49×4 or $0.14 \times \frac{250}{100}$ or 0.14×2.5	M1	
	1.96 or 0.35	A1	
	2.31	A1	
	Alternative method 2 – working in pence		
	$49 \times \frac{400}{100}$ or 49×4 or $14 \times \frac{250}{100}$ or 14×2.5	M1	
	196 or 35	A1	
	231	A1	
	2.31	B1ft	ft their 231 correctly converted to £
	Additional Guidance		
	Reward correct work seen amongst multiple attempts Use the scheme that gives the better mark		
	Condone p after their final answer eg £2.31p		

Q	Answer	Mark	Comments
7	Cost of 5 litres of cleaning fluid $2 \times 18 + 10$ or $36 + 10$ or 46 or $18 + 3 \times 10$ or $18 + 30$ or 48 or 5×10 or 50	M1	oe cost of 2×2 litres + 1×1 litre or cost of 1×2 litres + 3×1 litre or cost of 5×1 litre
	Cost of machine plus 5 litres of cleaning fluid $25 + 2 \times 18 + 10$ or $25 + 18 + 3 \times 10$ or 73 or $25 + 5 \times 10$ or 75	M1dep	oe
	71(.00p)	A1	SC1 70(.00p)
	Additional Guidance		
	Up to M2 may be awarded for correct work with no, or incorrect answer, even if this is seen amongst multiple attempts		
	Special case is for the correct total from using 2.5 bottles at £18		

Q	Answer	Mark	Comments
8	Alternative method 1 Compares cost of 480 bags		
	$480 \div 80$ or 6 or $480 \div 160$ or 3	M1	oe eg $160 + 160 + 160 = 480$ may be implied
	$480 \div 80 \times 1.9(0)$ or $6 \times 1.9(0)$ or 11.4(0)	M1	oe cost from small packs eg $1.90 \div 80 \times 480$ implies first M
	$480 \div 160 \times 3.25$ or 3×3.25 or 9.75	M1	oe cost from large packs eg $3.25 \div 160 \times 480$ implies first M
	1.65(p)	A1	
	Alternative method 2 Compares cost of 160 bags		
	$160 \div 80 \times 1.9(0)$ or $2 \times 1.9(0)$ or 3.8(0)	M1	oe cost from small packs
	their 3.8(0) – 3.25 or (0).55	M1dep	oe
	$480 \div 160 \times$ their 0.55 or $3 \times$ their 0.55	M1dep	oe
	1.65(p)	A1	
	Alternative method 3 Compares cost of 80 bags		
	$80 \div 160 \times 3.25$ or $3.25 \div 2$ or 1.625	M1	oe cost from large packs eg $\frac{1}{2} \times 3.25$
	$1.9(0) -$ their 1.625 or 0.275	M1dep	oe
	$480 \div 80 \times$ their 0.275 or $6 \times$ their 0.275	M1dep	oe
	1.65(p)	A1	

8 cont	Alternative method 4 Compares cost of 1 bag		
	1.9(0) ÷ 80 or 0.02375 and 3.25 ÷ 160 or 0.0203125	M1	oe cost from small and large packs two comparable costs
	1.9(0) ÷ 80 – 3.25 ÷ 160 or 0.0034375	M1dep	oe
	480 × their 0.0034375	M1dep	oe
	1.65(p)	A1	
	Additional Guidance		
	Allow working in pence for M marks		
	Up to M3 may be awarded for correct work with no, or incorrect answer, even if this is seen amongst multiple attempts		
	If comparing cost of eg 240 bags apply the principles of Alt 4		
	In Alt 1 the second and third marks both imply the first mark and can be done in either order		
	Alts 2, 3 and 4 for the second mark allow subtractions in either order		

Q	Answer	Mark	Comments
9	Alternative method 1 Words per minute or words per second		
	$416 \div 8$ or 52	M1	oe eg $416 \div (8 \times 60)$ or $416 \div 480$ or $\frac{13}{15}$ or [0.86, 0.87] or 0.9
	$1534 \div \text{their } 52$ or $(1534 - 416) \div \text{their } 52 + 8$ or 29.5	M1dep	oe eg $1534 \div \text{their } [0.86, 0.87]$ or $(1534 - 416) \div \text{their } [0.86, 0.87] + 8 \times 60$ or 1770
	29 minutes 30 seconds	A1	SC2 29 minutes 50 seconds or 29 minutes 5 seconds
	Alternative method 2 Minutes per word or seconds per word		
	$8 \div 416$ or $\frac{1}{52}$ or [0.019, 0.019231] or 0.02	M1	oe eg $8 \times 60 \div 416$ or $480 \div 416$ or $\frac{15}{13}$ or [1.15, 1.154] or 1.2
	$1534 \times \text{their } [0.019, 0.019231]$ or $(1534 - 416) \times$ $\text{their } [0.019, 0.019231] + 8$ or 29.5	M1dep	oe eg $1534 \times \text{their } [1.15, 1.154]$ or $(1534 - 416) \times \text{their } [1.15, 1.154]$ $+ 8 \times 60$ or 1770
	29 minutes 30 seconds	A1	SC2 29 minutes 50 seconds or 29 minutes 5 seconds

9 cont	Alternative method 3 Essay words $\div$ report words		
	1534 $\div$ 416 or $\frac{59}{16}$ or [3.68, 3.69] or 3.7 or (1534 – 416) $\div$ 416 or [2.68, 2.69] or 2.7	M1	oe
	8 $\times$ their [3.68, 3.69] or 8 $\times$ their [2.68, 2.69] + 8 or 29.5	M1dep	oe eg 8 $\times$ 60 $\times$ their [3.68, 3.69] or 8 $\times$ 60 $\times$ their [2.68, 2.69] + 8 $\times$ 60 or 1770
	29 minutes 30 seconds	A1	SC2 29 minutes 50 seconds or 29 minutes 5 seconds
	Additional Guidance		
	M1 may be awarded for correct work with no, or incorrect answer, even if this is seen amongst multiple attempts		
	Answer 29.5 minutes 1770 seconds		M1M1A0
	Build-up method must be a fully correct method that would lead to 29.5		
	If working with report words $\div$ essay words apply the principles of Alt 3		

Q	Answer	Mark	Comments
10(a)	5 $\div$ 0.75 or 500 $\div$ 75 or 6.6(...) or 6.7 or 75 $\times$ 6 or 450 or 0.75 $\times$ 6 or 4.5 or 75 $\times$ 7 or 525 or 0.75 $\times$ 7 or 5.25	M1	oe eg build up or build down
	6	A1	
	Additional Guidance		
	Incorrect work seen is A0 eg 75 $\times$ 6 = 450 and 75 $\times$ 7 = 575 Answer 6		M1A0
	Do not allow 5 $\div$ 75 or 500 $\div$ 0.75 unless recovered		
	Build up must be fully correct method, no errors, 75, 150, 225, 300, 375, 450, (525)		
	Build down must be fully correct method, no errors, 425, 350, 275, 200, 125, 50		

Q	Answer	Mark	Comments
10(b)	Alternative method 1 Comparing the cost of 24 bottles		
	2.5×0.1 or 0.25 or $1 - 0.1$ or 0.9	M1	oe eg $2.5 \div 10$ discount or multiplier for shop X implied by $2.5 \times 6 \times 0.1$ or 1.5 or 2.25
	$(2.5 - \text{their } 0.25) \times 6$ or $2.5 \times \text{their } 0.9 \times 6$ or 2.25×6 or 13.5	M1dep	oe eg 15×0.9 or $15 - 1.5$ shop X
	7×2 or 14	M1	oe shop Z
	X with 13.5 and 14 seen	A1	oe
	Alternative method 2 Comparing the cost of 1 bottle		
	2.5×0.1 or 0.25 or $1 - 0.1$ or 0.9	M1	oe eg $2.5 \div 10$ discount or multiplier for shop X implied by $2.5 \div 4 \times 0.1$ or 0.06(25) or 2.25
	$(2.5 - \text{their } 0.25) \div 4$ or $2.5 \times \text{their } 0.9 \div 4$ or $2.25 \div 4$ or 0.56(25) or 0.563	M1dep	oe eg $0.62(5) \times 0.9$ or $0.62(5) - 0.06(25)$ shop X
	$7 \div 12$ or 0.58(3...)	M1	oe shop Z
	X with 0.56(25) or 0.563 and 0.58(3...) seen	A1	oe
	Alternative method 3 Comparing the cost of 12 bottles		
	2.5×0.1 or 0.25 or $1 - 0.1$ or 0.9	M1	oe eg $2.5 \div 10$ discount or multiplier for shop X implied by $2.5 \times 3 \times 0.1$ or 0.75 or 2.25
	$(2.5 - \text{their } 0.25) \times 3$ or $2.5 \times \text{their } 0.9 \times 3$ or 2.25×3	M1dep	oe eg $7.5 \times \text{their } 0.9$ or $7.5 - 0.75$ shop X
	X with 6.75 (and 7) seen	A2	A1 6.75 oe

10(b) cont	Additional Guidance																		
	Up to 3 marks may be awarded for correct work with no answer or incorrect answer, even if this is seen amongst multiple attempts																		
	Use the scheme that favours the student eg 0.56 and 0.58 followed by 13.44 and 13.92 and X (mark by Alt 2)				M3A1														
	Ignore incorrect money notation eg 13.5 or 14.0																		
	All schemes can be oe in pence and allow work in a mix of pounds or pence for up to 3 marks																		
	Condone eg answer 13.5 with 14 seen				M3A1														
	For 0.1×2.5 , accept $10\% \times 2.5$ but do not accept 10% of 2.5 unless recovered																		
	Allow variations eg Shop X £15, Shop Z £14, Shop X is £1 more but the discount is £1.50 Shop X cheaper				M1 M1M1 A1														
	Where the student compares eg 2, 3, 4, 6, 48 or 96 bottles apply the principles of Alt 2 – some relevant figures given below (after offer)																		
	<table><tr><th>Shop</th><th>Cost of 2</th><th>Cost of 3</th><th>Cost of 4</th><th>Cost of 6</th></tr><tr><td>X</td><td>1.12(5) or 1.13</td><td>1.68(75) or 1.69</td><td>2.25</td><td>3.37(5) or 3.38</td></tr><tr><td>Z</td><td>1.16(6...) or 1.17</td><td>1.75</td><td>2.33(3...)</td><td>3.5</td></tr></table>					Shop	Cost of 2	Cost of 3	Cost of 4	Cost of 6	X	1.12(5) or 1.13	1.68(75) or 1.69	2.25	3.37(5) or 3.38	Z	1.16(6...) or 1.17	1.75	2.33(3...)
Shop	Cost of 2	Cost of 3	Cost of 4	Cost of 6															
X	1.12(5) or 1.13	1.68(75) or 1.69	2.25	3.37(5) or 3.38															
Z	1.16(6...) or 1.17	1.75	2.33(3...)	3.5															

Q	Answer	Mark	Comments
11	$496 \div 8$ or 62	M1	oe eg 8×62
	$5 \times$ their 62 or 310	M1dep	oe $496 \times \frac{5}{8}$ is M2
	638 – their 310 or 328 or $(638 - \text{their } 310) \div 2$	M1dep	oe dep on M2
	164	A1	
	Additional Guidance		
	Up to M3 may be awarded for correct work, with no answer or incorrect answer, even if this is seen amongst multiple attempts		

Q	Answer	Mark	Comments
12(a)	60 ÷ 12 or 5 or 12 ÷ 8 or 1.5	M1	oe for repeated addition, allow one error
	40	A1	
	Additional Guidance		
	8 × 5 = 35		M1A0
	60 ÷ (12 ÷ 8)		M1A0

Q	Answer	Mark	Comments
12(b)	4 × 56 or 224 or 10 × 56 or 560 or 6 × 56 or 336 or 2 × 2.7(0) or 5.4(0) or 2.7(0) ÷ 6 or 0.45	M1	oe eg 4 × (0).56 or 2.24
	2.7(0) + their 224 or 494 or their 5.6(0) – their 336 + 2.7(0)	M1dep	oe eg 270 + 4 × 56
	4.94	A1	accept 494p
	Additional Guidance		
	Allow mixed units for up to M1M1dep eg 2.70 + 4 × 56 eg 56 + 56 + 56 + 56 = 224, 224 + 2.70		M1M1 M1M1
	Condone £4.94p		M1M1A1
	(£)4.5(0) implies 0.45		M1
	Up to M2 may be awarded for correct work, with no or incorrect answer, even if seen amongst multiple attempts		

Q	Answer	Mark	Comments
12(c)	$3 \times 3.2(0)$ or $9.6(0)$ or $3.2(0) \div 2$ or $1.6(0)$ or $4 \times 3.2(0)$ or $12.8(0)$ or 3.5	M1	oe eg 3×320 or 960
	$3 \times 3.2(0) + 3.2(0) \div 2$ or $4 \times 3.2(0) - 3.2(0) \div 2$ or $3.5 \times 3.2(0)$ or 11.2 or 1120	M1dep	oe eg $3 \times 320 + 320 \div 2$ or $7 \times 1.6(0)$
	11.20	A1	accept 1120p
	Additional Guidance		
	Allow mixed units for up to M1M1dep eg $3 \times 3.2(0) + 320 \div 2$	M1M1	
	Condone £11.20p	M1M1A1	
	Up to M2 may be awarded for correct work, with no or incorrect answer, even if seen amongst multiple attempts		

Q	Answer	Mark	Comments
13(a)	(green in A =) $28 \div 2$ or 14 or (red in B =) $20 \div 5 \times 3$ or 12 or (total in A =) $28 \times \frac{3}{2}$ or (total in B =) $20 \times \frac{8}{5}$	M1	oe
	14 and 12 or (total in A =) 42 or (total in B =) 32 or (total green =) 34 or (total red =) 40	A1	may be implied by final answer
	74	A1	SC2 116 (using 56 green discs in A) or 26 (green in A + red in B)
	Additional Guidance		
	14 + 28 + 15 = 57 (implied correct interim total for Bag A)	M1A1A0	
	14 + 28 + 15 + 20 = 77 (implied correct interim total for Bag A)	M1A1A0	
	14 and 15, with 77 on answer line (implied correct interim total for Bag A)	M1A1A0	
	14 + 28 + 15 + 20, no answer (no implied correct interim total)	M1A0A0	

Q	Answer	Mark	Comments
14(a)	7.5	B3	B2 $168 \div 8 \times 5 \div 14$ oe or $168 \div 8 \times 5$ oe or 105 or $168 \times 5 \div 14$ oe or 60 or $168 \div 8 \div 14$ oe or 1.5 or $14 \div 5 \times 8$ oe or 22.4 B1 $168 \div 8$ or 21 or 168×5 or 840 or $168 \div 14$ or 12 or $14 \div 5$ or 2.8 or 14×8 or 112 or $8 \div 5$ or 1.6 or $5 \div 8$ or 0.625
	Additional Guidance		
	Up to B2 may be awarded for correct work, with no or incorrect answer, even if this is seen amongst multiple attempts		
	7.5 in working with answer 7 or 8		B3
	21×5		B2
	$840 \div 14$		B2
	$21 \div 14$		B2
	2.8×8		B2

Q	Answer	Mark	Comments
15	Two comparable values and Y	B2	B1 attempts to convert both to comparable form with at least one non-given value correct eg $\left(\frac{7}{20} \text{ and } \right) \frac{8}{20}$ or $\frac{1.75}{5}$ $\left(\text{and } \frac{2}{5}\right)$ or 0.35 and 0.4 or 35% and 40% or two values in the ratio 7 : 8
	Additional Guidance		
	Accept two comparable values for "not red"		
	$\frac{13}{20}$ and $\frac{12}{20}$ and Y		B2
	$\frac{13}{20}$ and $\frac{12}{20}$		B1
	$\frac{13}{20}$ only		B0
	Two comparable values and $\frac{2}{5}$ on answer line		B2
	35% and 40%, answer 40% (implies bag Y)		B2
	8 and Y		B2
	200 discs in each bag, 70 and 80, answer Y		B2
	200 discs in each bag, 70 (one non-given value correct)		B1
	70 and 50 (number of discs in each bag not specified)		B0
	35% and 20% (attempt to convert each to a percentage)		B1
	35% only		B0

Q	Answer	Mark	Comments
16(a)	56 – 17 or 39	M1	
	13	A1	
	Additional Guidance		
	M1 may be awarded for correct work with no answer or incorrect answer, even if this is seen in multiple attempts		
	Ignore any values for blue or white cubes		
	eg G B W R 17 13 13 13 With R unambiguously linked with 13 May be seen as a ratio Unless contradicted on the answer line is awarded M1A1		
	17 (+) 13 (+) 13 (+) 13 without 13 linked to red		M1A0
	13 and answer 13 out of 56		M1A1
	13 and answer $\frac{13}{56}$		M1A0
	13 and answer 56		M1A0
	Answer $\frac{13}{56}$		M1A0

Q	Answer	Mark	Comments
17	This is not representative of all flats or He didn't take into account flats on the other floors	B1	oe
	Additional Guidance		
	Ignore incorrect or irrelevant statements or incorrect values alongside a correct reason, unless contradictory		
	Data is biased		B1
	Missing floor or Misses top 2 floors (ignore incorrect value)		B1
	There could be different results on the other 4 floors (ignore incorrect value)		B1
	Must have a flat from each floor, do another 27 (ignore irrelevant statement)		B1
	Only doing 5 out of the 8 floors		B1
	Not tested any on floor 7 or 8		B1
	Missing most of the other floors (ignore 'most of' as irrelevant)		B1
	Some floors might be different to others		B1
	Sample all floors, sample size too small (ignore incorrect statement)		B1
	Needs to sample them all (all may refer to all flats not floors)		B0
	Sample too small		B0
	Some flats might be different to others		B0
	Didn't test a third of the flats		B0