Mark Scheme

Q1.

Question	Answer	Mark	Mark scheme	Additional guidance
	4 : 1	P1	for associating algebraic expressions with the correct ratio eg $p-5 : q-5$ $(=5:1)$ or $p+20 : q+20$ $(=5:2)$	
		P1	for $\frac{p+20}{q+20}=\frac{5}{2}$ **or** $\frac{p-5}{q-5}=\frac{5}{1}$ oe **or** $p-5=5(q-5)$ **or** $2(p+20)=5(q+20)$ oe	Award for one of the two simultaneous equations eg $5q-p=20$, $5q-2p=-60$ oe
		M1	for a complete method shown to find p **or** q	Award for a simultaneous equation method to eliminate one variable leading to either $p = 80$ or $q = 20$
		M1	for a complete method shown to find p **and** q **or** two values for p and q that are in the ratio 4 : 1 or an unsimplified ratio 4 : 1 (eg 80 : 20) or an answer of 1 : 4	Award for a simultaneous equation method to eliminate both variables leading to either $p = 80$ **and** $q = 20$
		A1	cao	

(**Q17 1MA1/2H, Nov 2018**)

Q2.

Paper 1MA1:3F			
Question	**Working**	**Answer**	**Notes**
(a)		1:1.5	M1 for 40:(100-40) A1 cao
(b)		$\frac{3}{4}$	B1

(**Q18 1MA1/3F/S1, Specimen papers**)

Q3.

Question	Answer	Mark	Mark scheme	Additional guidance
	3 : 5	P1	for process to find 20% **or** 120% of the cost, eg 8500 × 0.2 (= 1700) oe **or** 8500 × 1.2 (= 10 200) oe	When partitioning all figures quoted must be correct or a full method shown eg 10% = 8500 ÷ 10 (=850) and 20% = "850" + "850" (=1700)
		P1	for process to find total cost of payments, eg 12 × 531.25 (= 6375)	
		P1	for complete process to find value of deposit, eg "10 200" – "6375" (= 3825) **or** 8500 – "6375" (=2125) **and** "2125" + "1700" (=3825) **OR** the deposit as a proportion of the total cost, eg $1-\frac{"6375"}{"10200"}$ $(=\frac{3}{8})$	May be seen as a fraction of the total eg $\frac{3825}{10200}$ $(=\frac{3}{8})$
		P1	for finding a correct un-simplified ratio, eg "3825" : "6375" oe **or** 5:3 **or** $1.\dot{6}:1$ **or** $\frac{5}{3}:1$	Figures at this stage must be expressed as part of a ratio eg 51:85, $\frac{3}{8}:\frac{5}{8}$
		A1	Accept 1: $1.\dot{6}$, $1:\frac{5}{3}$	Ignore consistent units

(**Q04 1MA1/2H, June 2018**)

Q4.

Question	Answer	Mark	Mark scheme	Additional guidance
	No	P1	for 3000 ÷ (2 + 3) (= 600)	
	(supported)	P1	for "600" × 2 (= 1200) **or** "600" × 3 (= 1800) **or** "600" ÷ 6 (= 100) **or** "600" ÷ 20 (= 30)	
		P1	for "1200" ÷ 6 (= 200) **or** "1800" ÷ 20 (= 90) **or** "100" × 2 (= 200) **or** "30" × 3 (= 90)	
		P1	for "90" ÷ ("200" + "90") × 100 (= 31.0...) oe **or** "90" ÷ ("200" + "90") (= 0.31...) **or** 0.3 × ("200" + "90") (= 87)oe	Full method to compare
		C1	correct conclusion **and** fully correct calculations with accurate figure eg No and 87 **or** No and 31% **or** No and 0.31	No working, answer only no marks No may be implied by a statement

(**Q03 1MA1/2H, Nov 2020**)

Q5.

Question	Answer	Mark	Mark scheme	Additional guidance
(a)	5	P1	for finding the number of oranges required eg $8 \div 2 \times 30$ (=120) oe **or** for finding the number of oranges left from use of at least 2 boxes eg $24 \times 2 - 30$ (=18) or $24 \times 4 - 90$ (=6) **or** finds the correct amount of juice possible : from at least two boxes eg 24 + 24 is 2 litres or 24 + 24 + 24 is 4 litres	A build up method with no process shown must use fully correct figures
		P1	for a complete process eg "120" ÷ 24 (=5) oe **or** 30 + 30 + 30 + 30 (=120) **and** 24 + 24 + 24 + 24 + 24 (=120) **or** $24 \times 2 - 30 = 18$, $18 + 24 = 42$, $42 - 30 = 12$, $12 + 24 = 36$, $36 - 30 = 6$, $6 + 24 = 30$	May be seen as a mixture of repeated subtraction and addition
		A1	cao with no arithmetic errors seen SCB1 for an answer of 10 supported by working	This mark cannot be awarded if the supporting work has an arithmetic error An answer only and no working is no marks
(b)	9 : 2	M1	for a partially simplified correct ratio eg 126 : 28 or any other equivalent ratio **or** 2 : 9	eg 630:140, 315:70, 63: 14 180:40, 90:20, 45:10, 4.5:1
		A1	cao	

(**Q17 1MA1/2F, Nov 2020**)

Q6.

Question	Answer	Mark	Mark scheme	Additional guidance
	60	P1	for $240 \div (5 + 3 + 2)$ (= 24)	
		P1	for complete process to find the number of cans of each drink eg $5 \times$ "24" (= 120) and $3 \times$ "24" (= 72) and $2 \times$ "24" (= 48)	
		P1	for process to find the number of cans removed eg "72" ÷ 2 (= 36) and "48" ÷ 12 (= 4)	
		P1	for process to find percentage eg $\frac{"120"}{240-("36"+"4")} \times 100$ or $\frac{"120"}{"120"+("72"-"36")+("48"-"4")} \times 100$	
		A1	cao	
			Alternative	
		P1	for process to find proportion of lemonade and orange cans removed, eg $3 \times \frac{1}{2}$ $(= 1\frac{1}{2})$ and $2 \times \frac{1}{12}$ $(= \frac{1}{6})$	
		P1	for process to find proportion of lemonade and orange cans remaining, eg $3 - "1\frac{1}{2}" + 2 - "\frac{1}{6}"$ $(= 3\frac{1}{3})$	
		P1	for $5 + "3\frac{1}{3}"$ $(= 8\frac{1}{3})$	
		P1	for process to find percentage eg $(5 \div "8\frac{1}{3}") \times 100$	
		A1	cao	

(**Q18 1MA1/1F, Nov 2022**)

Q7.

Question	Answer	Mark	Mark scheme	Additional guidance
(a)(i)	2 : 6 : 5	P1	for process to compare ratios, eg $a : b = 2 : 6$ or $b : c = 3 : 2.5$	Could use 3 or any common multiple of 3 and 6
		A1	for 2 : 6 : 5 oe	
(ii)	$\frac{2}{13}$	M1	for process to find fraction, eg $\frac{[2]}{[2+6+5]}$ or for $\frac{a}{a+b+c}$	
		A1	for $\frac{2}{13}$ oe or ft (a)(i)	
(b)	1 : 10	P1	for process to express all numbers in terms of one number, eg $p = 5 \times 2m$ $(= 10m)$ or $m = \frac{n}{2}$ **or** for $2m = \frac{p}{5}$ **or** for assigning values in the ratio given, eg $m = 1, n = 2, p = 10$ **or** for $n : m : p = 2 : 1 : 10$ oe **or** 10 : 1 oe	
		A1	for 1 : 10 oe	

(**Q24 1MA1/1F, Nov 2022**)

Q8.

Question	Answer	Mark	Mark scheme	Additional guidance
	96	P1	for process to find the ratio of the number of pens of each colour sold, eg $2 \times 7 : 5 \times 3 : 6 \times 4$ $(= 14 : 15 : 24)$	Does not have to be seen as a ratio but all three needed
		P1	for process to find the proportion of green pens sold, eg $\frac{212}{"14"+"15"+"24"}$ **or** $\frac{"24"}{"14"+"15"+"24"}$	
		P1	for a complete process to find the number of green pens sold, eg $\frac{212}{"14"+"15"+"24"} \times$ "24" **or** $\frac{"24"}{"14"+"15"+"24"} \times 212$	P3 can be implied by the values 56, 60 and 96
		A1	cao	

(**Q06 1MA1/1H, June 2019**)

Q9.

Question	Answer	Mark	Mark scheme	Additional guidance
	2	P1	for a process to find the number of men, eg. (60 ÷ 2) ÷ 3 (= 10)	
	(supported)	P1	for a process to find the number of children, eg. 60 – "30" – "10" (= 20)	60 ÷ 3 = 20 scores no marks
		P1	for a start of a process to find the value of n, eg. ("20" : "10") ÷ 5 or 20 : 10 = 10 : 5 or "20" ÷ "10"	Any ratio must come from correct processes to find the number of children and the number of men
		A1	for 2 with supportive working	Award 0 marks for 2 with no correct supportive working Award full marks for 2 : 1 given as a final answer from correct supportive working

(**Q02 1MA1/1H, Nov 2019**)

Q10.

Question	Answer	Mark	Mark scheme	Additional guidance
	$\frac{27}{56}$	P1	for $\frac{3}{8}$ **and** $\frac{7}{9}$ **OR** uses a total of 72 cards and shows a process to find the number of cards with a black shape **or** the number of cards with a triangle, eg 72 ÷ 8 × 3 (=27) **or** 72 ÷ 9 × 7 (=56)	72 or any multiple of 72 Could be seen in a ratio, eg 27 : 45 or 16 : 56
		P1	for process shown to divide fractions $\frac{3}{8} \div \frac{7}{9}$ **or** $\frac{3}{8} \times \frac{9}{7}$ **OR for** $\frac{3}{8} \times \frac{9}{9} \left(=\frac{27}{72}\right)$ **and** $\frac{7}{9} \times \frac{8}{8} \left(=\frac{56}{72}\right)$ **OR** uses a total of 72 cards and shows a process to find the number of cards with a black shape **and** the number of cards with a triangle, eg 72 ÷ 8 × 3 (=27) **and** 72 ÷ 9 × 7 (=56)	Accept the division shown as $\frac{\frac{3}{8}}{\frac{7}{9}}$ Could be seen in ratios, eg 27 : 45 and 16 : 56
		A1	for $\frac{27}{56}$ or any other equivalent fraction	Answer of 27 : 56 gets P2A0

(**Q23 1MA1/1H, Nov 2020**)

Q11.

Question	Answer	Mark	Mark scheme	Additional guidance
	Yes, supported by correct working	P1	for 36 : 48 oe **OR** $\frac{36}{84}$ oe **or** $\frac{48}{84}$ oe	Relating to drama group 1
		P1	for $\frac{4}{7}$ **or** 3 : 4 oe (for group 2) **OR** $(\frac{36}{84}=\frac{3}{7})$ **or** $(\frac{48}{84}=\frac{4}{7})$ **or** $84 \times 3 \div 7$ (= 36 boys) **or** $84 \times 4 \div 7$ (= 48 girls) **or** $N \times 3 \div 7$ and $N \times 4 \div 7$	Relating to drama group 2 N can be any number (other than 84) of students in the 2nd group
		A1	for Yes with both ratios 3 : 4 oe **or** for a correct pair of fractions and stating they are equivalent.	Both equivalent forms of the ratios (fractions) must be the same "Yes" may be implied from working

(**Q12 1MA1/1F, Nov 2021**)

Q12.

Question	Answer	Mark	Mark scheme	Additional guidance
	612	P1	Alan: for 100 – 32 – 40 (= 28) or for finding "28"% of 400 eg 400 × 0.28 (=112)	
		P1	Beryl: for $1-\frac{3}{10}-\frac{1}{10}\left(=\frac{6}{10}=60\%\right)$ or for finding $"\frac{6}{10}" \times 500$ (=300)	
		P1	Charlie: for starting to use the ratio 3 : 4 eg 150 ÷ 3 (=50)	
		P1	for complete ratio process eg $"\frac{150}{3}" \times 4$ (=200)	
		A1	cao	Answers only (without working) award 0 marks.

(**Q23 1MA1/3F, June 2019**)

Q13.

Question	Answer	Mark	Mark scheme	Additional guidance
	30	P1	for $160 \div (3+7)$ (= 16) **or** $\frac{3}{3+7}(=\frac{3}{10})$	
		P1	for "16" × 3 (= 48) **or** "$\frac{3}{10}$" × 160 (= 48)	
		P1	for a correct step using 48 eg "48" ÷ 8 (= 6) **or** "48" × 25 ÷ 100 (= 12) **or** (indep) for combining $\frac{1}{8}$ and 25%, eg $\frac{1}{8}+\frac{1}{4}$ $(=\frac{3}{8})$ or "0.125" + "0.25" (= 0.375) or "12.5"(%) + 25(%) (= 37.5(%))	
		P1	for a complete process to find the number of petrol cars, eg "48" – "6" – "12" oe **or** (1 – "$\frac{3}{8}$") × "48" oe **or** $\frac{3}{10}\times(1-$"$\frac{3}{8}$"$)\times 160$ oe	
		A1	cao SC B2 for an answer of 100 if P0 scored	Award no marks for a correct answer with no supportive working

(**Q03 1MA1/1H, June 2022**)

Q14.

Question	Answer	Mark	Mark scheme	Additional guidance
	Yes, supported by correct figures	P1	for a process to find the number of sweets Tina gives to Andy, eg $14\div 7\times 3\ (=6)$ **or** for a process to work with fractions of the total to find fraction given to Andy, eg $\frac{14}{21}\times\frac{3}{7}\left(=\frac{2}{7}\right)$ **or** for dividing a given number (eg 441) in the ratio 1 : 6 : 14 (= 21 : 126 : 294)	May work with an equivalent ratio, eg 21 : 126 : 294 and do $294\div 7\times 3(=126)$ as a first step May work in multiples of x for all marks
		P1	for a process to find number for Andy and Tina after first exchange, eg A = 1 + "6" (=7) **and** T = 14 – "6" (=8) **or** for a process to find the number of sweets Tina gives to Luke eg $(14-"6")\times\frac{12.5}{100}\ (=1)$ **or** for a process to work with fractions of the total to find fraction given to Luke, eg for $\frac{(14-"6")}{21}\times\frac{12.5}{100}$ **or** process to work out the number of sweets given to Andy **and** Luke for their total, eg "294" ÷ 7 × 3 (= 126) **and** $("294"-"126")\times\frac{12.5}{100}$ (= 21)	
		P1	for a process to find the final amounts or final shares for at least **two** of Andy, Luke and Tina eg two of 1 + "6" (= 7) , 6 + "1" (= 7) , 14 – "6" – "1" (= 7) **or** $\frac{1}{21}+\frac{"2"}{7}\left(=\frac{7}{21}\right)$, $\frac{6}{21}+"\frac{1}{21}"\left(=\frac{7}{21}\right)$, $\frac{14}{21}-"\frac{2}{7}"-"\frac{1}{21}"\left(=\frac{7}{21}\right)$ **or** "21" + "126" (= 147) , "126" + "21" (= 147) , "294" – "126" – "21" (= 147)	
		C1	Yes, supported by full working and accurate figures for Andy, Luke and Tina	Accurate figures with no supportive working scores 0

(**Q06 1MA1/2H, June 2024**)

Q15.

Question	Answer	Mark	Mark scheme	Additional guidance
	7.5	P1	for process to find the number of empty jars eg $3 \div 8 \times 400$ oe (= 150)	
		P1	for start of process to deal with ratios eg 3 : 4 and 4 : 8 **or** 3 : 4 : 8 oe	
		P1	for process to find the number of empty small jars eg $\frac{3}{3+4+8} \times$ "150" oe (= 30) **or** 30 : 40 : 80	
		P1	for process to find percentage, eg $\frac{"30"}{400} \times 100$ oe or $\frac{"7.5"}{100}$	
		A1	for 7.5 or $7\frac{1}{2}$ oe	
			OR	
		P1	for start of process to deal with ratios eg 3 : 4 and 4 : 8 **or** 3 : 4 : 8 oe	
		P1	for process to find the proportion of the empty jars that are small eg $\frac{3}{3+4+8}$ $(=\frac{1}{5})$	
		P1	for process to find the proportion of Kasim's jars that are empty small jars eg $\frac{3}{8} \times "\frac{1}{5}" (= \frac{3}{40})$	
		P1	for process to find percentage, eg $"\frac{3}{40}" \times 100$ oe or $\frac{"7.5"}{100}$	
		A1	for 7.5 or $7\frac{1}{2}$ oe	

(**Q26 1MA1/1F, June 2024**)

Q16.

Question	Answer	Mark	Mark scheme	Additional guidance
	6 : 15 : 20	P1	chooses a multiplier to equate the two fractions in terms of b eg $\frac{2}{5}\times\frac{3}{3}\left(=\frac{6}{15}\right)$ **or** $\frac{3}{4}\times\frac{5}{5}\left(=\frac{15}{20}\right)$ **or** lists equivalent fractions to $\frac{2}{5}$ up to at least $\frac{6}{15}$, eg. $\frac{2}{5}, \frac{4}{10}, \frac{6}{15}, \ldots$ **or** lists equivalent fractions to $\frac{3}{4}$ up to at least $\frac{15}{20}$, eg. $\frac{3}{4}, \frac{6}{8}, \frac{9}{12}, \frac{12}{16}, \frac{15}{20}, \ldots$ **or** $(a : b =)$ 2 : 5 **and** $(b : c =)$ 3 : 4 **or** for 6 : 15 or 15 : 20 seen	
		P1	puts into related terms ready for ratio eg $\frac{2}{5}\times\frac{3}{3}=\frac{6}{15}$ **and** $\frac{3}{4}\times\frac{5}{5}=\frac{15}{20}$ **or** for $(a : b =)$ 6 : 15 **and** $(b : c =)$ 15 : 20 **or** lists equivalent ratios up to a common element for b, eg $a : b$ = 2 : 5, 4 : 10, 6 : 15 **and** $b : c$ = 3 : 4, 6 : 8, 9 : 12, 12 : 16, 15 : 20	Need not be written in ratio form
		A1	for 6 : 15 : 20 oe	Accept equivalent ratios Accept a =6, b = 15 and c = 20

(**Q10 1MA1/1H, Nov 2020**)

Q17.

Question	Working	Answer	Mark	Notes
		5 : 2 : 10	P1	for process to calculate total for quiz or total of membership fees eg. 13 × 5 + 35 (=100), 25 × 20 (=500)
			P1	for complete process to write (correct) figures as a ratio, eg 250 : 100 : 500 oe in any order (condone inclusion of units or words)
			A1	cao

(**Q11 1MA1/2F, Nov 2017**)

Q18.

Question	Answer	Mark	Mark scheme	Additional guidance
(a)	28	B1	cao	
(b)	4 : 9	M1	for 8 : 18 or for any ratio equivalent to 4 : 9 **or** 9 : 4 or 2.25 : 1	
		A1	for 4 : 9	Accept 4 : 9 in the form 1 : n, eg 1 : 2.25

(**Q09 1MA1/2F, June 2023**)

Q19.

Question	Answer	Mark	Mark scheme	Additional guidance
	35	P1	use of ratio 2:3 and tin quantities to find overall ratio of litres eg 4:3 or 4 tins : 3 tins **or** 20 litres (Y) & 30 litres (B)	
		P1	calculates total cost of making paint eg 4 × 26 + 3 × 48 (50 litres) **or** 104+144 (=248)	Could be multiples 4 & 3 (for an amount which is a multiple of 50 litres). "248" is the total cost for making 50 litres
		A1	calculates comparable cost eg 10 litres (1 tin) green paint made as 49.6 **or** differences (profit) for 1 tin as 17.36 or 5 tins as 86.8 **or** total comparable costs for 50 litres as 334.8 **and** 248, for 25 litres as 167.4 **and** 124 or 1 litres as 33.48 **and** 24.8	"248" ÷ 5 = 49.6 for 10 litre (1 tin) green paint made Profit on 10 litres is 66.96 – 49.60 = 17.36 Profit on 50 litres is 304.8 – 248 = 86.8 334.8 comes from 5 × 66.96 and is the selling price for 50 litres green paint
		P1	for percentage calculation eg $\frac{1736}{4960}\times 100$, $\frac{"334.8"-"248"}{"248"}\times 100$	
		A1	cao	

(**Q10 1MA1/2H, Nov 2018**)

Q20.

Question	Answer	Mark	Mark scheme	Additional guidance
	1.75	P1	for an initial process eg 1.80 ÷ 12 (=0.15) or 1.80 ÷ 3 (=0.6)	Accept 1.8 ÷ 12 = 15 (p) They can work in pounds or pence
		P1	for a correct second step eg "0.15" ÷ 3 (=0.05) or "0.6" × 7 (=4.2) or 3÷ "0.15"(=20) or 7 ÷ 3 (=2.3..) or "0.15" × 7 (=1.05)	
		P1	for finding the price of one pen eg "0.05" × 7 (=0.35) or "4.2" ÷ 12 (=0.35) or 7 ÷ "20"(=0.35) or "2.3.... × "0.15" (=0.35) or "1.05" ÷ 3 (=0.35)	
		A1	cao	

(**Q20 1MA1/2F, Nov 2020**)

Q21.

Question	Working	Answer	Mark	Notes
(a)		3 : 1 : 5	M1 A1	for ratio in unsimplified form, e.g. 420 : 140 : 700 cao
(b)		1.5	B1	for 1.5 or $1\frac{1}{2}$ or $\frac{3}{2}$

(Q14 1MA1/2F/M3, Specimen papers)

Q22.

Question		Working	Answer	Mark	Notes
			4 : 10 : 21 : 7	P1 P1 A1	for process of using "twice", e.g. $\frac{3}{4} \times 2x$ or $\frac{1}{4} \times 2x$ or $(2 + 5) \times 2$ for combining ratios e.g. $\frac{2}{7}x : \frac{5}{7}x : \frac{3}{4} \times 2x : \frac{1}{4} \times 2x$ or correct but unsimplified ratio leading to given ratio cao

(Q11 1MA1/2H/M3, Specimen papers)

Q23.

Question	Answer	Mark	Mark scheme	Additional guidance
	(M) 18, (K) 15	P1 P1 P1 A1	for start of process, eg $(6x + 1.5)$ **and** $(5x + 1.5)$ **or** $(6x + 1.5)$ **and** $(11x + 3)$ **or** $a + 1.5$ **and** $b + 1.5$ **OR** starts to work with ratio, eg 6 : 5 = 12 : 10 for setting up an equation, eg $\frac{6x+1.5}{5x+1.5}=\frac{13}{11}$ **or** $66x + 16.5 = 65x + 19.5$ **or** $\frac{6x+1.5}{11x+3}=\frac{13}{24}$ **or** $144x + 36 = 143x + 39$ **or** $\frac{a}{b}=\frac{6}{5}$ **and** $\frac{a+1.5}{b+1.5}=\frac{13}{11}$ **or** $5a = 6b$ **and** $11a + 16.5 = 13b + 19.5$ oe **OR** for comparing 12 : 10 to 13 : 11 **and** deducing 1 part = 1.5 for isolating in terms of x, eg $66x - 65x = 19.5 - 16.5$ **or** $144x - 143x = 39 - 36$ **or** $x = 3$ **or** for eliminating a or b, eg $55a = 66b$ **and** so $66b = 65b + 15$ **OR** for process to find values for M **and** K, eg 12×1.5 **and** 10×1.5 cao	

(Q15 1MA1/2H, June 2022)

Q24.

Question	Answer	Mark	Mark scheme	Additional guidance
	21	P1	for process to work correctly with initial ratio, eg $120 \div 4 \times 9$ (= 270) **or** $90 + 120 + 60$ (= 270)	Can be implied by 90 : 120 : 60 or by a second ratio that totals to 270
		P1	for process to find the value of 1 part in the new ratio, eg "270" ÷ (2 + 5 + 3) (= 27)	
		P1	for process to find both values for Errol, eg ("27" × 3) (= 81) **and** (120 ÷ 4 × 2) (= 60)	
		A1	cao	

(**Q26 1MA1/2F, Nov 2023**)

Q25.

Question	Answer	Mark	Mark scheme	Additional guidance
	Isabel (supported)	P1	for process to work with $\frac{3}{4}$ eg $1-\frac{3}{4}$ $(=\frac{1}{4})$ oe, eg 25% or $\frac{25}{100}$ **or** $\frac{3}{4}$ = 75% or $\frac{75}{100}$ **or** value of salary (say 1000) × 3 ÷ 4 (= 750)	
		P1	for process to work with ratio 3 : 7 eg $\frac{3}{3+7}$ oe **or** $\frac{7}{3+7}$ oe **or** value of salary (say 1000) ÷ (3+7) (= 100)	
		A1	for (28(%)), 25(%) and 30(%) **or** 72(%), 75(%), 70(%) **or** 0.28, 0.25, 0.3 **or** for using value of salary (say 1000) giving 280, 250, 300 **or** 720, 750, 700	
		C1	(dep P2) for Isabel or ft their comparative values	"Isabel" alone without supported evidence, gets 0 marks.

(**Q14 1MA1/1F, June 2018**)

Q26.

Question	Answer	Mark	Mark scheme	Additional guidance
	42 : 63 : 15 : 20	P1	for a first step to write a relationship between 2 weights, eg A + B : C + D = 3 : 1 or A : B = 2 : 3 or C : D = 3 : 4 or $A + B = 3(C + D)$ or $A = \frac{2}{3}B$ or $C = \frac{3}{4}D$	
		P1	for giving all 3 relationships in the same form eg A + B : C + D = 3 : 1 and A : B = 2 : 3 and C : D = 3 : 4 or $A + B = 3(C + D)$ and $A = \frac{2}{3}B$ and $C = \frac{3}{4}D$	
		P1	for complete process to link all 4 weights, eg $\frac{2}{3}B + B = 3\left(\frac{3}{4}D + D\right)$ and $A = \frac{2}{3}B$ and $C = \frac{3}{4}D$ or A : B : C : D = A : 63 : C : 20 and $A = \frac{2}{3}B$ and $C = \frac{3}{4}D$ or C : D = 3 : 4 and A : B : D = 42 : 63 : 20	
		A1	oe	

(**Q17 1MA1/3H, Nov 2022**)

Q27.

Question	Answer	Mark	Mark scheme	Additional guidance
(a)	27	B1	cao	
(b)	$\frac{2}{7}$	B1	or any equivalent fraction	
(c)	No (supported)	P1	for method to find the number of children on Friday eg 0.7×500 oe (= 350)	
		P1	for method to find the number of children on Saturday eg $720 \div 8 \times 5$ oe (= 450)	
		C1	for No with correct figures, eg No **and** 350 **and** 450 **or** No **and** 100 more on Saturday	Award 0 marks for a correct answer with no supportive working.

(**Q14 1MA1/1F, June 2023**)

Q28.

Question	Answer	Mark	Mark scheme	Additional guidance
	168	P1	for a start to the process, eg $\frac{57}{100} \times 800$ (= 456) or $57 \div (12 + 7)$ (= 3) **or** $800 \div (12 + 7)$ (= 42.1...) **or** [amount] $\times \frac{57}{100}$ or [amount] $\times \frac{7}{12+7}$	May be seen as part of other calculations, eg $\frac{7}{12+7} \times 57$ (= 21) or $\frac{7}{12+7} \times 800$ (= 294.7...) [amount] can be any figure considered as being 57% of 800 or 43% calculated incorrectly or a figure calculated from using full or partial ratio incorrectly as a first step
		P1	for a complete process to find the weight of glass, eg $\frac{57}{100} \times 800 \times \frac{7}{12+7}$ oe	
		A1	for an answer in the range 167.9 to 168 SCB2 for an answer of 288	

(**Q25 1MA1/2F, June 2023**)

Q29.

Question	Answer	Mark	Mark scheme	Additional guidance
(a)	Explanation	C1	For stating the LCM of (4+7) and (5+3) is 88 **or** there is no smaller multiple of 8 and 11 (than 88)	
(b)	23	P1	for using a scale factor appropriately eg 4×8 (=32) **or** 3×11 (=33) **or** 7×8 (=56) **or** 5×11 (=55) **or** for writing a pair of suitable fractions, eg $\frac{7}{11}$ and $\frac{3}{8}$ **or** $\frac{4}{11}$ and $\frac{5}{8}$ **or** $\frac{3}{8}$ and $\frac{4}{11}$	May be seen in a two-way table or probability tree
		P1	for finding the number of large cubes and red cubes **or** small and yellow **or** small and red eg 7×8 (=56) and 3×11 (=33) **or** 4×8 (=32) and 5×11 (=55) **or** 4×8 (=32) and 3×11 (=33) **OR** a suitable fractional equation, eg $\frac{7}{11} - x = \frac{3}{8}$ **or** $\frac{5}{8} - x = \frac{4}{11}$ **or** $x = 1 - \frac{3}{8} - \frac{4}{11}$ **OR** a suitable pair of probabilities with a common denominator, eg $\frac{56}{88}$ and $\frac{33}{88}$ **or** $\frac{32}{88}$ and $\frac{55}{88}$ **or** $\frac{33}{88}$ and $\frac{32}{88}$	May be seen in a two-way table or probability tree $\frac{23}{88}$ scores P2A0
		A1	cao	

(**Q17 1MA1/2H, June 2019**)

Q30.

Question	Working	Answer	Mark	Notes
		225	M1	for method to find weight of beans, e.g. $\frac{3}{2} \times 150$
			A1	cao

(**Q16 1MA1/2F/M3, Specimen papers**)

Q31.

Question	Answer	Mark	Mark scheme	Additional guidance
	4 : 1 : 2	M1	for start to express the statements as a ratio eg 4 : 1, 1 : 4, 1 : 2 or 2 : 1 with clear and correct link to Azmol, Ryan, Kim **OR** as algebraic expressions, two of $4x$, x and $2x$ eg $4x : x$, $1x : 4x$, $1x : 2x$ or $2x : 1x$ with clear and correct link to Azmol, Ryan, Kim	Allow any equivalent ratio, integers only May be seen as part of an incorrect answer. May be seen as integer multiples of these algebraic expressions. Any letter may be used.
		A1	4 : 1 : 2 oe	Accept 8 : 2 : 4 or equivalent ratios involving integers
		(SCB 1	3 integer numbers in correct ratio but no ratio notation, eg 4, 1, 2 or 20, 5, 10)	

(**Q13 1MA1/1F, Nov 2018**)

Q32.

Question	Answer	Mark	Mark scheme	Additional guidance
	30:1	M1	for stating 450 : 15 oe **or** 450 ÷ 15 (=30) oe **or** 1 : 30	90 : 3
		A1	cao	Ignore units throughout.

(Q16 1MA1/3F, Nov 2018)

Q33.

Question	Answer	Mark	Mark scheme	Additional guidance
	2 : 1	B1	cao	

(Q14 1MA1/2F, June 2019)

Q34.

Question	Answer	Mark	Mark scheme	Additional guidance
	$\frac{9}{25}$	M1	for $\frac{n}{6+9+10}$ where n is an integer < 25	
		A1	for $\frac{9}{25}$	Or equivalent fraction

(Q12 1MA1/3F, June 2019)

Q35.

Question	Answer	Mark	Mark scheme	Additional guidance
	18	P1	for 240 ÷ 10 (= 24) **or** 240 ÷ 8 (= 30)	Accept 3 + 7 for 10, 3 + 5 for 8
		P1	for 3 × "24" (= 72) **or** 7 × "24" (= 168) **or** 3 × "30" (= 90) **or** 5 × "30" (= 150)	
		P1	for 3 × "24" (= 72) **and** 3 × "30" (= 90) **or** 7 × "24" (= 168) **and** 5 × "30" (= 150)	
		A1	Cao	

(Q03 1MA1/2H, Nov 2019)

Q36.

Question	Answer	Mark	Mark scheme	Additional guidance
	$\frac{13}{20}$	P1	for finding the fraction who chose either soup ($\frac{2}{5}$ oe) or chose prawns ($\frac{3}{5}$ oe) **or** for process to share any number in the ratio 2 : 3 eg $100 \div (2 + 3) \times 2$ (=40)	Starting number 100 Soup : Prawn 40:60
		P1	for a process that could lead to the proportion who chose lasagne or curry for either starter, eg sharing 40% (soup) in the ratio 5 : 3 **or** sharing 60% (prawns) in the ratio 1 : 5 **or** $\frac{2}{5} \times \frac{5}{8}$ **or** $\frac{2}{5} \times \frac{3}{8}$ **or** $\frac{3}{5} \times \frac{1}{6}$ **or** $\frac{3}{5} \times \frac{5}{6}$ **or** for continuing the process with their starting number to find the number who chose lasagne or curry for either starter	L:C L:C 25:15 10:50
		P1	for a complete process to find the proportion who chose curry for **both** starters, eg$(\frac{2}{5} \times \frac{3}{8}) + (\frac{3}{5} \times \frac{5}{6})$ **or** to find the number who chose curry for **both** starter for their starting number	$15 + 50 = 65$ and $\frac{15+50}{100}$
		A1	$\frac{13}{20}$ or equivalent fraction	

(Q14 1MA1/3H, Nov 2019)

Q37.

Question	Answer	Mark	Mark scheme	Additional guidance
	3 : 5	B1	for 3 : 5 or for any other equivalent ratio	

(Q06 1MA1/3F, Nov 2019)

Q38.

Question	Answer	Mark	Mark scheme	Additional guidance
(a)	$\frac{3}{7}$	B1	oe	
(b)	1 : 2.5	M1	for appropriate method shown eg $30 \div 12$ (= 2.5) **or** for a method that involves simplification of 12 : 30 approaching $1 : n$, eg. 4 : 10 or 6 : 15 or 2 : 5 **or** for 2.5 : 1 or $2\frac{1}{2}$: 1	
		A1	for 1 : 2.5 or $1 : 2\frac{1}{2}$ **or** for $n = 2.5$	Accept a fraction equivalent to $2\frac{1}{2}$, eg. $1 : \frac{30}{12}$ 2.5 alone gets M1A0

(Q09 1MA1/1F, Nov 2020)

Q39.

Question	Answer	Mark	Mark scheme	Additional guidance
	33	P1	for relating 24 to 8 parts, **or** (1 part =) 24 ÷ 8 (= 3) **or** 15 – 7 (= 8) **or** starts to use a build-up method, eg (8 :) 14 : 30	8 parts = 24
		P1	for (15 – 4) **and** (24 ÷ 8) **or** 15 × 3 (= 45) **and** 4 × 3 (= 12) **or** for 12 (: 21) : 45	
		A1	cao	

(Q24 1MA1/1F, Nov 2021)

Q40.

Question	Answer	Mark	Mark scheme	Additional guidance
	12.85 or 12.86 or 13.5(0)	P1	for 9 + 2 + 1 (=12)	Award this mark for sight of 4500, 1000 or 500
		P1	for working out how many lots of 175g are needed eg 6000 ÷ "12"× 2 ÷ 175 (=5.71..)	Process may lead to 5 or 6 instead of 5.71
		P1	for a complete process eg "5.71…" × 2.25 (=12.857..)	"5.71…" (ft) or a figure rounded or truncated eg "6"
		A1	for 12.85 or 12.86 or 13.5(0)	

(Q22 1MA1/3F, Nov 2021)

Q41.

Question	Answer	Mark	Mark scheme	Additional guidance
	8 : 12 : 9 : 1	P1	for 2 + 3 (= 5) and 9 + 1 (= 10) OR for assigning a total number of sweets for F + G and O + J eg F + G = 100, O + J = 50	May be in algebraic form, eg $2a + 3a$ (= $5a$) and $9a + 1a$ (= $10a$) May be in algebraic form, eg F + G= $5a$, O + J = $2.5a$
		P1	for finding correct multiplier for relationship between totals for F + G and O + J eg × 4 to get from 5, 10 to 20, 10 OR for working out the number of sweets from their totals for F, G eg 40, 60 or for O, J, eg 45, 5	
		P1	for 2 × 4 (= 8) and 3 × 4 (= 12) OR for ratio in unsimplified form, eg 40 : 60 : 45 : 5	
		A1	cao	

(Q14 1MA1/3H, Nov 2021)

Q42.

Question	Answer	Mark	Mark scheme	Additional guidance
	1.5	P1	for process to develop 3 algebraic expressions, eg. (R =) n, (S =) $2n$, (T =) $2n - 6$, oe, at least two must be correct. **or** for selecting 3 values satisfying the given criteria, eg. (R =) 10, (S =) 20, (T =) 14	
		P1	for process to sum 3 algebraic expressions and equating to 54, eg. n + "$2n$" + "$2n - 6$" = 54 **or** for finding the correct sum of their values eg. "10" + "20" + "14" = 44	
		P1	for start of process to solve the correct linear equation, eg. $5n = 54 + 6$ ($n = 12$) **or** for 12, 24, 18	
		P1	for "12" : $2 \times$ "12" $- 6$ oe eg 12 : 18 oe or 18 : 12 linked to T, R	
		A1	for 1.5 or $\frac{3}{2}$ or $1\frac{1}{2}$	Accept 1 : 1.5 etc as answer

(**Q24 1MA1/3F, June 2022**)

Q43.

Question	Answer	Mark	Mark scheme	Additional guidance
	1 : 6 : 3	M1	for any two algebraic statements from x, $6x$, $6x/2$ oe **or** any two numbers as a correct ratio eg 1 : 6 or 6 : 3 or 1 : 3 oe **or** any 3-term ratio using the numbers 1, 6 and 3	
		A1	oe	For any equivalent ratio.

(**Q12 1MA1/3F, Nov 2022**)

Q44.

Question	Answer	Mark	Mark scheme	Additional guidance
	Description	C1	Identifies a mistake in the working **Acceptable examples** Rob should divide by 8 He should have added the 3 and 5 first He divided 120 by 3 and 5 instead of 8 He did not do it as $120 \times \frac{3}{8}$ and $120 \times \frac{5}{8}$ He did not add the two ratios first **Not acceptable examples** He has done it in two parts but he should do it in one The answer should be 45 : 75 They do not add up to 120 He is supposed to add his numbers 40 + 24 does not equal 120	

(**Q22 1MA1/3F, Nov 2022**)

Q45.

Question	Answer	Mark	Mark scheme	Additional guidance
	(c) 30 (t) 54	P1	for setting up an equation, eg $7c + 5t = 480$ **or** $c : t = 5 : 9$ **or** $\frac{c}{t} = \frac{5}{9}$ **or** $9c = 5t$ **or** for starting to work with ratio of total costs, eg 7×5 (= 35) **and** 5×9 (= 45) or $7 \times \frac{5}{14}$ **and** $5 \times \frac{9}{14}$ or 35 : 45 or 7 : 9	
		P1	for a process to eliminate c or t from correct equations, eg $7c + 9c = 480$ or $7 \times \frac{5t}{9} + 5t = 480$ or $7c + \frac{9c}{5} \times 5 = 480$ **or** for 480 ÷ ("35" + "45") (= 6) **or** for a process to find total cost of carrots or total cost of tomatoes, eg 480 ÷ ("7" + "9") × 7 (= 210) **or** 480 ÷ ("7" + "9") × 9 (= 270)	
		P1	for a process to isolate t or c, eg $16c = 480$ or $80c = 2400$ oe or $80t = 4320$ oe **or** for one value correct eg $c = 30$ or $t = 54$ **or** for a process to find cost of 1 kg of carrots or 1 kg of tomatoes, eg 5 × "6" (= 30) **or** 9 × "6" (= 54) **or** "210" ÷ 7 (= 30) **or** "270" ÷ 5 (= 54)	
		A1	cao	

(**Q18 1MA1/1H, June 2023**)

Q46.

Question	Answer	Mark	Mark scheme	Additional guidance
	175	M1	for a complete method eg 35 × (4 + 1) oe	
		A1	cao	

(**Q15 1MA1/3F, June 2023**)

Q47.

Question	Answer	Mark	Mark scheme	Additional guidance
	No with reason	C1	for No and valid reason, eg compares $\frac{1}{3}$ with $\frac{1}{2}$ or 16 (with 24) **Acceptable examples** No, $\frac{1}{3}$ are red not $\frac{1}{2}$ There are 16 red counters (not 24) No as she has used the ratio 1:1 (not 1:2) Incorrect as it is 16 : 32 No as she should divide by 3 (as 1 + 2 = 3) No as they would both be 24 so it doesn't fit in the ratio 1 : 2 No because 24 + 48 = 72 **Not acceptable examples** Yes, … No as the number of red counters would be lower There is 1 red for every 2 blue	

(**Q22 1MA1/2F, June 2023**)

Q48.

Question	Answer	Mark	Mark scheme	Additional guidance
	Shown	M1	for start to method to find a ratio connecting 2 of a, b, and c, eg $a : c = 3 : 5$ oe or $b : c = 5 : 3$ oe **or** for start to method to combine ratios, eg $14a : 35c$ (= 126 : 525) **and** $20b : 35c$ (= 500 : 525)	May be expressed in fractional form Any ratios must be clearly assigned to variables
		M1	for method to find $a : b : c$, eg 9 : 25 :15 oe **or** for method to write $a + b : b + c$ in terms of one variable eg $\frac{3c}{5} + \frac{5c}{3} : \frac{5c}{3} + c$	
		A1	for $a + b : b + c = 34 : 40$ oe leading to result	34: 40 may be seen as 9+ 25 : 25+ 15

(**Q18 1MA1/2H, June 2023**)

Q49.

Question	Answer	Mark	Mark scheme	Additional guidance
	3 : 5	P1	for process to eliminate fractions, eg $11(2x^2 + y^2) = 43(4x^2 - y^2)$ **or** $22x^2 + 11y^2 = 172x^2 - 43y^2$	Alternative methods are acceptable
		P1	for process to isolate terms in x^2 and y^2, eg $54y^2 = 150x^2$ **or** $y^2 = \frac{25x^2}{9}$	
		P1	for full process to find a correct relationship between x and y eg $y = \frac{5x}{3}$ oe	Accept square roots, eg $\sqrt{54}$ but not decimal approximations.
		A1	cao	

(**Q23 1MA1/3H, Nov 2023**)

Q50.

Question	Answer	Mark	Mark scheme	Additional guidance
	3 : 5	M1	for 24 : 40 or for any ratio equivalent to 24 : 40 **or** 5 : 3	Accept 3 : 5 in the form n : 1, eg 0.6 : 1 **or** 1 : n, eg 1 : 1.66(..)
		A1	for 3 : 5	

(Q10 1MA1/2F, Nov 2023)

Q51.

Question	Answer	Mark	Mark scheme	Additional guidance
	2 : 3	M1	for 24 : 36 oe **or** 3 : 2 **or** 1.5 : 1	
		A1	2 : 3 or 1 : 1.5	Do not ISW from 2:3

(Q10 1MA1/1F, June 2024)

Q52.

Question	Answer	Mark	Mark scheme	Additional guidance
	No, with correct figures	P1	for start to process to find amount of each paint colour needed eg 24 ÷ (4 + 3 + 1) (= 3) **or** 8 : 6 : 2 **or** for start to process to simplify 12 : 7 : 5 to a ratio that can be compared to 4 : 3 : 1 eg 12 ÷ 4(= 3) **or** 7 ÷ 3 (= 2.3 ...) **or** 5 ÷ 1 (= 5)	
		P1	for complete process to find amount of each paint colour needed eg "3" × 4 (= 12) **and** "3" × 3 (= 9) **and** "3" × 1 (= 3) **or** 12 : 9 : 3 **or** for complete process to cancel 12 : 7 : 5 to a ratio that can be compared to 4 : 3 : 1 eg 12 : 7 : 5 as 4 : "$\frac{7}{3}$" : "$\frac{5}{3}$" or 4 : "2.3 ..." : "1.6 ..." **or** 12 : 7 : 5 as "$5\frac{1}{7}$" : 3 : "$2\frac{1}{7}$" or "5.14 ..." : 3 : "2.14 ..." **or** 12 : 7 : 5 as "$2\frac{2}{5}$": "$1\frac{2}{5}$": 1 or "2.4" : "1.4" : 1	
		C1	No, with correct figure(s) for comparison. eg No with 12 : 9 : 3 No, 9 litres of yellow needed No with 4 : 2.3 ... : 1.6 ...	No may be indicated by eg 'not enough yellow'.

(Q17 1MA1/1F, Nov 2024)

Q53.

Question	Answer	Mark	Mark scheme	Additional guidance
	3 : 5	M1	for 90 : 150 oe ratio **or** 5 : 3	eg 30 : 50, 15: 25, 9 : 15
		A1	cao	Accept 3 : 5 in the form n : 1, eg 1 : 1.66(…)

(Q09 1MA1/2F, Nov 2024)

Q54.

Question	Answer	Mark	Mark scheme	Additional guidance
	–1, 2.5	P1	for process to form an equation, eg $\frac{x^2}{3x+5}=\frac{1}{2}$ **or** $2x^2 = 3x + 5$	
		P1	for writing in a suitable form ready for solution, eg $2x^2 – 3x – 5 (= 0)$ **or** $– 2x^2 + 3x + 5 (= 0)$	
		P1	(dep 1st P1) for process to solve quadratic equation of form $ax^2 + bx + c (= 0)$ eg $(2x – 5)(x + 1)$ $(= 0)$ **or** $\frac{--3 \pm \sqrt{(-3)^2 - 4 \times 2 \times -5}}{2 \times 2}$	
		A1	for –1, 2.5 oe	

(**Q17 1MA1/1H, June 2019**)

Q55.

Question	Answer	Mark	Mark scheme	Additional guidance
	Result shown	M1	for method to find the number of yellow counters in bag **A**, eg $x \div 3 \times 5 \left(= \frac{5x}{3}\right)$ or for method to find the total number of counters in bag **A** eg $x \div 3 \times 8 \left(= \frac{8x}{3}\right)$ or for starting to work with ratio using algebra eg $3y, 5y$	Could use any letter other than y apart from x
		M1	(dep) for method to find the total number of counters in bag **B**, eg $(x + \text{“}\frac{5x}{3}\text{”}) \div 2 \left(= \frac{4x}{3}\right)$ or $\text{“}\frac{8x}{3}\text{”} \div 2 \left(= \frac{4x}{3}\right)$ or $(3y + 5y) \div 2 (= 4y)$	For the method marks condone decimals that are rounded or truncated to 1dp
		C1	for complete method showing that total number of counters in bag **A** and bag **B** is $4x$, eg $\frac{8x}{3} + \frac{4x}{3} = 4x$ or $3y + 5y + 4y = 12y$ **and** $12y \div 3y \times x = 4x$	For the C mark only accept values that are shown to be recurring and allow $3.9x = 4x$

(**Q10 1MA1/3H, June 2024**)

Q56.

Question	Answer	Mark	Mark scheme	Additional guidance
(a)	3 : 4	P1	for start of process, eg isolate terms in c, eg $4c = 3d$ **or** divide all terms by d, eg $\frac{5c}{d} + 1 = \frac{c}{d} + 4$	
		A1	for 3 : 4	Accept any equivalent ratio or $c = 3$, $d = 4$
(b)	5 : 2	P1	for start of process: to take all terms to one side eg $6x^2 - 7xy - 20y^2 (= 0)$ **or** divide all terms by y^2, eg $\frac{6x^2}{y^2} = \frac{7xy}{y^2} + \frac{20y^2}{y^2}$ **or** substitute a value of x ($x > 0$) or a value of y ($y > 0$) into the equation, eg $x = 5$, $150 = 35y + 20y^2$	
		P1	for second step in process, eg $(2x - 5y)(3x + 4y) (= 0)$ **or** $6p^2 - 7p - 20 (= 0)$ (where $p = \frac{x}{y}$) **or** $20y^2 + 35y - 150 (= 0)$	Accept $x = 5$, $y = 2$ or equivalent ratios, eg, $1 : \frac{2}{5}$
		A1	5 : 2	

(**Q21 1MA1/3H, Nov 2020**)

Q57.

Question	Working	Answer	Mark	Notes
(a)		3 : 1	M1	for $(x \pm 3y)(x \pm 3y)$ or $\frac{x^2}{y^2} = 9$
			A1	for $x = 3y$ or $\frac{x}{y} = 3$
			A1	for 3 : 1 oe
(b)		$\frac{3+2x}{3-x}$	M1	for $(3 + 2x)(1 - 2x)$ oe
			M1	for $(2x - 1)(x - 3)$ oe
			A1	for cancelling correctly to leave $\frac{3+2x}{3-x}$ oe

(**Q17 1MA1/1H/M3, Specimen papers**)

Q58.

Question	Answer	Mark	Mark scheme	Additional guidance
	8	P1	for a start to the process, eg $\frac{9}{9+4+x}$ **or** $(\frac{3}{7} =) \frac{9}{21}$ **or** states that the total number of sweets is 21	
		P1	for forming a correct equation without fractions, eg $9 \times 7 = 3(9+4+x)$ **or** $21 = 9+4+x$ **OR** for $21-9-4$ oe **or** $1-\frac{9}{21}-\frac{4}{21}$ $(=\frac{8}{21})$	
		A1	cao	

(**Q11 1MA1/1H, June 2022**)

Q59.

Question	Answer	Mark	Mark scheme	Additional guidance
(a)(i)	2 : 6 : 5	P1	for process to compare ratios, eg $a : b = 2 : 6$ or $b : c = 3 : 2.5$	Could use 3 or any common multiple of 3 and 6
		A1	for 2 : 6 : 5 oe	
(ii)	$\frac{2}{13}$	M1	for process to find fraction, eg $\frac{[2]}{[2+6+5]}$ or for $\frac{a}{a+b+c}$	
		A1	for $\frac{2}{13}$ oe or ft (a)(i)	
(b)	1 : 10	P1	for process to express all numbers in terms of one number, eg $p = 5 \times 2m$ $(= 10m)$ or $m = \frac{n}{2}$ **or** for $2m = \frac{p}{5}$ **or** for assigning values in the ratio given, eg $m = 1, n = 2, p = 10$ **or** for $n : m : p = 2 : 1 : 10$ oe **or** 10 : 1 oe	
		A1	for 1 : 10 oe	

(**Q06 1MA1/1H, Nov 2022**)

Q60.

Question	Working	Answer	Mark	Notes
(a)		$\frac{3}{7}$	B1	for $\frac{3}{7}$ or equivalent fraction
(b)		3 : 1	B1	for 3 : 1 or equivalent ratio

(**Q06 1MA1/2F, Nov 2017**)

Q61.

Paper 1MA1: 2F			
Question	Working	Answer	Notes
		96	P1 a strategy to start to solve the problem eg. 18 ÷ (7 −4) (= 6) P1 for completing the process of solution eg. "6" × (4 + 5 + 7) A1 cao

(**Q23 1MA1/2F/N, Specimen papers**)

Q62.

Question	Working	Answer	Notes
	6 : 5 = 12 : 10 2 : 1 = 10 : 5 C : S : P = 12 : 10 : 5 $\frac{10}{27} \times 189$	70	P1 P1 for strategy to start to solve the problem eg 12 : 10 and 10: 5 P1 P1 for process to solve the problem eg $\frac{10}{27} \times 189$ A1 A1 cao

(**Q06 1MA1/2H/S2, Specimen papers**)

Q63.

Question	Working	Answer	Notes
	$\frac{2x-1}{x-4} = \frac{16x+1}{2x-1}$ $(2x-1)^2 = (16x+1)(x-4)$ $12x^2 - 59x - 5 = 0$ $(12x+1)(x-5) = 0$	$-\frac{1}{12}$, 5	P1 for process to write as an equation P1 for process to clear the fractions P1 for process to write equation in form $ax^2 + bx + c = 0$ P1 for process to solve the equation A1 cao

(**Q21 1MA1/2H/S2, Specimen papers**)

Q64.

Question	Working	Answer	Mark	Notes
		68	P1	for a process to find the number of vanilla cakes, eg $420 \times 2 \div 7$ oe (= 120)
			P1	for a process to find the number of banana cakes, eg 420×0.35 oe (= 147)
			P1	(dep P1) for a full process to find the number of lemon/chocolate cakes eg 420 – (vanilla cakes) – (banana cakes) (= 153)
			P1	(dep on previous P1) for a process to find the number of lemon cakes eg "153" ÷ 9 × 4 oe (= 68)
			A1	cao
				OR
			P1	for writing two proportions in the same format
			P1	for combining the proportions of vanilla and banana cakes eg 2/7 + 7/20 (= 89/140)
			P1	(dep P1) for a full process to find the proportion or number of lemon/chocolate cakes eg 1 – "89/140" (= 51/140)
			P1	(dep on previous P1) for a process to find the number of lemon cakes eg "51/140" × 420 ÷ 9 × 4 (= 68)
			A1	cao

(Q18 1MA1/3F, June 2017)

Q65.

Question	Working	Answer	Mark	Notes
		$\frac{1}{3}$	P1	process to solve the problem e.g. $\frac{3}{10}\times\frac{4}{9}\left(=\frac{12}{90}=\frac{2}{15}\right)$ OR finds the number of white circles for their chosen number OR for 9 : 21 (or a multiple of 9 : 21)
			P1	second step of the process e.g. $\frac{7}{10}\times\frac{2}{7}\left(=\frac{14}{70}=\frac{2}{10}=\frac{1}{5}\right)$ OR finds the number of black circles for their chosen number OR for a multiple of 2 : 5 where the ratio parts sum to "21"
			P1	for complete process e.g. $"\frac{2}{15}"+"\frac{1}{5}"\left(=\frac{4}{30}+\frac{6}{30}\right)$ OR finds the total number of circles for their chosen number OR for 3 ratios that could be used to solve the problem eg 9 : 21 with 4 : 5 with 6 : 15
			A1	for $\frac{1}{3}$ oe

(Q14 1MA1/1H, June 2017)

Q66.

Question	Working	Answer	Notes
		700	P1 for process for total non-fiction books eg $\frac{1}{4}\times 80$ (=20) P1 process for total takings for non fiction eg $20\times\frac{1}{2}\times 10$ (= 100) P1 process to find total takings "100" + 60 × 10 A1 700

(Q12 1MA1/1F/S2, Specimen papers)

Q67.

Question	Working	Answer	Mark	Notes
		135	M1	for 450 ÷ "2+3+5" (=45) **or** $\frac{3}{10} \times 450$ (=135) **or** 5 parts are 225 **or** 2 parts are 90 indicated
			A1	Cao

(Q18 1MA1/1F, Nov 2017)

Q68.

Paper 1MA1: 2H			
Question	Working	Answer	Notes
		6 : 2 : 1	M1 for correct interpretation of any one statement eg. 3 : 1; 1 : 0.5
			A1 accept any equivalent ratio eg. 3 : 1 : 0.5

(Q08 1MA1/2H/N, Specimen papers)

Q69.

Question	Working	Answer	Notes
		3 : 4	M1 for 32 – 8 (= 24)
			M1 (dep) for "24" : 32
			A1 cao

(Q18 1MA1/2F/S2, Specimen papers)

Q70.

Question	Working	Answer	Mark	Notes
		3 : 4 : 11	P1	Makes a start e.g. by using multipliers e.g. 1 + 5 = 6 and 7 + 11 = 18 and 6 × 3 = 18 or $AB:BD = 3:15$ or $x=3y$ (appropriate x and y shown) or $\frac{1}{6} = \frac{3}{18}$
			P1	Complete process to find ratios e.g. (7 + 11) ÷ (1 + 5) = 3 and 1 × "3" : 7 − ("3" × 1) : 11
			A1	oe

(Q12 1MA1/3H, June 2017)

Q71.

Question		Working	Answer	Mark	Notes
			200	2	M1 for 80 ÷ 2 **or** 40 used **or** scale factor of 2.5
					A1 cao

(Q14 1MA1/1F/M1, Specimen papers)

Q72.

Question	Working	Answer	Mark	Notes
		51 & 27	M1	42 ÷ 14 (= 3)
			M1	(dep M1) for "3" × 17 or "3" × 9
			A1	51 and 27 correctly assigned

(Q19 1MA1/2F/M2, Specimen papers)

Q73.

Question		Working	Answer	Mark	Notes
			24 : 15 : 20	3	P1 forms an equation linking 3 variables $5a = 8b = 6c$ or gives 2 ratios with common value for b e.g. 24 : 15 and 15 : 20 P1 unsimplified ratio A1 cao

(Q08 1MA1/2H/M1, Specimen papers)

Q74.

Question	Working	Answer	Mark	Notes
		24,72 and 192	M1	for 288 ÷ (1 + 3 + 8) (= 24)
			M1	for a complete method to find the weight in the medium or the large box
			A1	for 24, 72 and 192

(Q09 1MA1/3F/M2, Specimen papers)

Q75.

Question	Working	Answer	Mark	Notes
4		15	P1	strategy to start the problem, eg 8 : 20 and 20 : 5
			P1	process to solve the problem, eg $\frac{5}{33}\times 100$ or 24 : 60 : 15
			A1	cao

(Q04 1MA1/3H, Nov 2017)

Q76.

Question	Working	Answer	Mark	Notes
		14:21:42	P1	for 2 out of 3 expressions in one letter eg from x, $x+7$ $2x+14$ **or** see a set of numbers to show interpretation of the relationships, eg 10, 17, 34
			P1	(dep) for sum of their 3 expressions =77 eg $x + x+7+2x+14 = 77$ oe **or** 2 systematic correct trials including addition
			P1	for a correct process to isolate their term in x **or** $x=14$
			A1	for ratio 14:21:42 oe

(Q02 1MA1/1H, Nov 2017)

Q77.

Question	Working	Answer	Mark	Notes
		(£6), 18, 24, 27	M1	demonstrates a proportional method to find at least one cost for cotton, eg. £6 ÷ 2 × 9 (= (£)27) or a correct entry in the table.
		15, 45, 60, 67.50	M1	demonstrates a proportional method to find at least one cost for silk, eg. £6 ÷ 2 × 5 (= (£)15) or a correct entry in the table.
			A1	for a fully correct table (accept 67.5(0))

(Q15 1MA1/3F, Nov 2017)

Q78.

Question	Working	Answer	Mark	Notes
		$5(3p + 7q)$	P1	for start to process, e.g. derivation of algebra using information, e.g. $3p + 7q$ or 50 divided in the ratio 3: 7
			P1	for process to find mass of 1 litre of R, e.g. $(3p + 7q) \div (3+7)$ or 15 : 35 oe
			A1	oe

(Q09 1MA1/1H/M2, Specimen papers)

Q79.

Question	Working	Answer	Mark	Notes
		$y=\frac{x(k+1)}{k-1}$	M1	$y+x=k(y-x)$ **or** $\frac{y+x}{y-x}=k$ oe
	$ky-y=x+kx$ $y(k-1)=x(1+k)$		M1	For isolating x and y on opposite sides eg $ky-y=x+kx$
			A1	Completing correct algebraic reasoning to reach conclusion

(**Q14 1MA1/1H, Nov 2017**)

Q80.

Question	Working	Answer	Mark	Notes
		1 : 10	M1 A1	for 12 : (20 × 6) oe **or** 10 : 1 **or** 1 with 10 in incorrect notation cao

(**Q10 1MA1/1F, June 2017**)

Q81.

Question	Answer	Mark	Mark scheme	Additional guidance
	1 : 3	M1	for $\frac{1}{4}:\frac{3}{4}$ oe **OR** for any correct un-simplified ratio, eg 25 : 75	
		A1	cao SC: B1 for an answer of 3 : 1 or 1 : $\frac{1}{3}$ if M0 scored	Ignore 'units' such as 1 nuts : 3 no nuts 1 : 3*n* gets M1A0

(**Q17 1MA1/1F, June 2018**)

Q82.

Paper 1MA1: 1F			
Question	**Working**	**Answer**	**Notes**
		1 : 3	M1 for stating a ratio eg 28 : 84 or 1 : 3 incorrectly stated or 3:1 A1 cao

(**Q12 1MA1/1F/S1, Specimen papers**)

Q83.

Question	Working	Answer	Mark	Notes
(a)		1 : 3	B1	oe
(b)		42	M1	ft 56 ÷ 4 (= 14) or complete method to find number of grey tiles eg 56 – (56 ÷ 4), 56 ÷ 4 × 3 oe (= 42)
			A1	for 42 or ft

(**Q05 1MA1/3F, June 2017**)

Q84.

Question	Working	Answer	Notes
(a)		$\frac{20}{35}$	B1 $\frac{20}{35}$ oe
(b)		3 : 4	M1 15 : 20 A1 cao

(**Q15 1MA1/3F/S2, Specimen papers**)

Q85.

Question	Working	Answer	Mark	Notes
		5 : 6	M1	starts by writing as a ratio, e.g. 100 : 120 or gives the simplified answer incorrectly, e.g. 6 : 5; 5,6
			A1	cao

(**Q13 1MA1/1F/M2, Specimen papers**)

Q86.

Question		Working	Answer	Mark	Notes
			2:3	1	B1 cao

(**Q02 1MA1/2F/M1, Specimen papers**)

Q87.

Question		Working	Answer	Mark	Notes
			3 : 2	2	M1 for 78 : 52 oe or 2 : 3 A1 cao

(**Q11 1MA1/3F/M1, Specimen papers**)