

1	(a)	$30 \div 8$	4	P1	for $30 \div 8$ or 3.75 or 3 or counting up 8s towards 30 to at least 3 lots of 8 or $4 \times 8 (=32)$ oe
	(b)		No with reason	A1	cao
				C1	No with $32 \div 8$ or fit from (a)

2			180, 210, 375, 3	M1	for $\frac{24}{16}$ or 1.5 or $\frac{16}{24}$ oe or 0.5 of any figure in the recipe calculated or amount of any ingredient for 1 flapjack or 3 (tablespoons)
				M1	for method to scale at least one ingredient in grams eg 120×1.5 or 140×1.5 or 250×1.5
				A1	for all quantities correct

3			Daisy is wrong	P1	for process to find area of any relevant circle ie $\pi \times 4^2 (=16\pi)$, $\pi \times 7^2 (=49\pi)$, $\pi \times 10^2 (=100\pi)$ or 7^2 and 4^2
			(supported)	P1	for completed method to find shaded area eg " $\pi \times 7^2$ " - " $\pi \times 4^2$ " (=33 π) or use of radii eg $7^2 - 4^2 (=33)$
				A1	for 2 comparable figures, eg 33 π and 100 π or 33 and 100 or 103 to 103.7 and 314 to 314.2 or 103 to 103.7 and 104.6 to 104.8
				C1	statement eg No because it should be $\frac{33}{100}$ and their accurate figures Allow use of $\pi = 3$ or better

4	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) $\times 3 \div 4$ (= 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) $\div (3+7)$ (= 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 fit their comparative values	"Isabel" alone without supported evidence. gets 0 marks.

5		90	P1	for a process to find the number of batches for at least 2 ingredients, eg $900 \div 225$ (= 4) or $1000 \div 110$ (= 9.09...) or $1000 \div 275$ (= 3.6...) or $225 \div 75$ (= 3) OR A full method to find the maximum number of biscuits for 1 ingredient eg $900 \div 225 \times 30$ OR Amount required for 1 biscuit for at least 2 ingredients eg $225 \div 30$ (= 7.5) or $110 \div 30$ (= 3.6...) or $275 \div 30$ (= 9.1...) or $75 \div 30$ (= 2.5) OR Amount required for 3 batches for at least 2 ingredients eg 225×3 (= 675) or 110×3 (= 330) or 275×3 (= 825) or 75×3 (= 225)	
			P1	(dep P1) for a complete process to find the maximum number of biscuits after considering at least 3 different ingredients eg " 3×30 "	They must use their smallest multiplier after considering at least 3 different ingredients
			A1	(dep P2) cao from fully correct working	90 without working award no marks

6		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 $10\% = 8500 \div 10$ (=850) and $20\% =$ "850" + "850" (=1700) May be seen as a fraction of the total eg $\frac{3825}{10200}$ ($=\frac{3}{8}$) Figures at this stage must be expressed as part of a ratio eg $51:85$, $\frac{3}{8} : \frac{5}{8}$ Ignore consistent units
			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 $1 - \frac{6375}{10200}$ ($=\frac{3}{8}$)	
			P1	for finding a correct un-simplified ratio, eg "3825" : "6375" oe or 5:3 or $1.6 : 1$ or $\frac{5}{3} : 1$	
			A1	Accept $1 : 1.6$, $1 : \frac{5}{3}$	

7	(a)	10	M1	for a start of method to find Bisphah's share, eg 2.50×8 (= 20) or $\frac{1}{2} \div \frac{1}{8}$ (= 4)	Accept 10.00 Accept working in pence, or in £ given as a decimal oe NB: award this mark if the working is seen in part (a) Accept 3:1 (correct answer in reverse order) which can also be an equivalent ratio to 3:1 Award full marks for 1 : 3 or an equivalent ratio. If an equivalent ratio to 1:3 is shown and then simplified incorrectly award full marks.
			A1	cao	
			P1	for a process to find Chan's share, eg "20" – 2.5 – [Bisphah's money] (=7.5) or $1 - \frac{1}{8} - \frac{1}{2}$ ($=\frac{3}{8}$)	
			P1	for a correct ratio eg 2.5 : "7.5" or $\frac{1}{8} : \frac{3}{8}$ or 3 : 1 oe	
	(b)	1 : 3	A1	for 1 : 3 oe eg 5 : 15	

8	(a)	8	P1	for process to find sum of unknown probabilities, eg $1 - 0.45 - 0.25$ (= 0.3) OR to find the total number of counters in the bag, eg $\frac{18}{0.45}$ (= 40) OR to find the number of yellow counters, eg $\frac{0.25}{0.45} \times 18$ (= 10)	Award mark for any two probabilities given that sum to 0.3 eg given in the table. Award P2 for P(red) or P(white) (could be shown in table) Equations could be given as written statements or working but must be fully equivalent.
			P1	for process to find P(red) = 0.2 oe or P(white) = 0.1 oe OR for process to find the total number of red and white counters, eg "40" – 18 – "10" (=12) OR for process to derive an equation in x, eg $2x + x = 1 - 0.45 - 0.25$ or $2x + x = "0.3"$ or $x = 0.1$	
			P1	for a complete process to find the number of red counters, eg $\frac{2 \times 0.1}{0.45} \times 18$ or $\frac{2}{3} \times "12"$ or $0.2 \times "40"$ or $\frac{0.2}{0.025}$	
			A1	cao	
	(b)	Explanation	C1	for explanation eg 0.5 multiplied by an odd number will never be a whole number, for half of a number to be an integer that number must be even, you can't have half a marble	

9	(a)	420	P1	starts process, eg $300 \div 5$ (= 60) or $200 \div 2$ (= 100) OR builds up ratio to at least 300 ml orange juice with one error	May be seen as "60" \times 7 "60" must come from correct method
			P1	complete process, eg "60" \times 5 + "60" \times 2 or 300 : 120	
			A1	cao	
			C1	explains that it will have no effect with reason, eg because he only needs 120 ml of lemonade because he has no more orange juice to use	
	(b)	explanation			

10	Jan's store (supported)	P1	process to reduce £5 by 20% (= £4) or increase 400 by 30% (= 520)	May work in pence throughout Accept any correct appropriate percentage process
		P1	process to reduce £5 by 20% (= £4) and increase 400 by 30% (= 520)	
		P1	(dep P2) process to find comparable values, eg $400 \div "4"$ and $"520" \div 5$	May use £/g or any other comparable values
		C1	'Jan's store' fully supported by correct comparative values, eg 100 (g/£) and 104 (g/£)	Do not award without correct comparable values and full working.

11	No (supported)	P1	for start to process, eg $2100 \times \frac{40}{100}$ (= 840) or $100 - 40$ (= 60)	May compare bonus shares of a single salesman or total bonus share for all 7 salesmen.
		P1	for process to find the 7 salesmen's share of bonus, eg $2100 - "840"$ (= 1260) or $2100 \times \frac{60}{100}$ (= 1260)	
		P1	for process to find bonus amount each salesman gets eg $"1260" \div 7$ (= 180) OR process to find the total bonus for all salesmen if shared equally, eg $\frac{2100}{10} \times 7$ (= 1470)	
		P1	for process to compare what a single salesman gets under each scheme, eg $"180" \times \frac{25}{100}$ (= 45) and $"2100" - "180"$ (= 30) or $"180" \times \frac{25}{100}$ (= 45) and $"180" + "45"$ (= 225) or $\frac{2100}{10}$ (= 210) or $(\frac{2100}{10} - "180") + "180" \times 100$ (= 16.6...) OR process to compare what all salesmen gets under each scheme, eg $"1260" \times \frac{25}{100}$ (= 315) and $"1470" - "1260"$ (= 210) or $"1260" \times \frac{25}{100}$ (= 315) and $"1260" + "315"$ (= 1575) or $"1470"$ or $(\frac{2100}{10} - "1260") + "1260" \times 100$ (= 16.6...)	
A1	'No' supported by correct figures, eg 45 and 30, 225 and 210, 315 and 210 or 1575 and 1470 or 16.6...)(% and 25%)	Do not award unless correct figures have been shown to support a statement made that the salesman was not correct.		

12	40 litres (supported)	P1	for finding a cost linked to the correct volume for one offer eg 120 litres = 3×3.50 (= (£)10.5(0)) or 120 litres = (£)9 OR for finding cost per litre or litres per £ for one offer eg $3.50 \div 40$ (= 0.0875) or $9 \div 120$ (= 0.075) or $40 \div 3.50$ (= 11.4...) or $120 \div 9$ (= 13.3...) OR for working with bags in the ratio 2 : 1	<table border="1"> <tr> <td>120 l</td> <td>£10.50</td> <td>£9</td> </tr> <tr> <td>80 l</td> <td>£7</td> <td>£6</td> </tr> <tr> <td>40 l</td> <td>£3.50</td> <td>£3</td> </tr> <tr> <td>20 l</td> <td>£1.75</td> <td>£1.50</td> </tr> </table>	120 l	£10.50	£9	80 l	£7	£6	40 l	£3.50	£3	20 l	£1.75	£1.50
		120 l	£10.50		£9											
		80 l	£7		£6											
40 l	£3.50	£3														
20 l	£1.75	£1.50														
P1	for finding costs linked to the same volume for both offers eg 120 litres = 3×3.50 (= (£)10.5(0)) and 120 litres = (£)9 OR for finding cost per litre or litres per £ for both offers eg $3.50 \div 40$ (= 0.0875) and $9 \div 120$ (= 0.075) or $40 \div 3.50$ (= 11.4...) and $120 \div 9$ (= 13.3...) OR for a complete process to inform decision															
C1	'40 litre bags' supported by correct comparable values	Clear indication that the 40 litre bags are better value for money supported by correct values for comparison														

13	40	P1	for a process to find the maximum number of batches for one ingredient, eg $500 \div 175 (= 2.85\dots)$ or $300 \div 75 (= 4)$ or $625 \div 250 (= 2.5)$	Figures may be truncated or rounded
			OR for a process to find the amount of one ingredient for 1 biscuit, eg $175 \div 2 (= 10.9375)$ or $75 \div 16 (= 4.6875)$ or $250 \div 16 (= 15.625)$	
			OR for multiples of $175 : 75 : 250$, eg $175 \times 2 (= 350)$ and $75 \times 2 (= 150)$ and $250 \times 2 (= 500)$	
		P1	(dep P1) identifies flour as the limiting factor	
			OR for a process to find the maximum number of biscuits for one ingredient, eg butter: " 2.85 " $\times 16$ or $500 \div "10.9\dots"$ oe ($= 45.7\dots$) sugar: " 4 " $\times 16$ or $300 \div "4.6\dots"$ oe ($= 64$) flour: " 2.5 " $\times 16$ or $625 \div "15.625"$ oe ($= 40$)	
		A1	cao	
			SCB2 for answer of 32	

14	(a)	shop A from correct figures	P1	for start of process to find the number of packs needed from at least one shop, eg $30 \div 4 (= 7.5 \text{ or } 8)$ or $30 \div 6 (= 5)$	"8" must come from "7.5" rounded up
			P1	for process to find cost of batteries from at least one shop, eg $(30 \div 4) \times 1.6 (= 12.8 \text{ or } 12)$ or $(30 \div 6) \times 2.7 (= 13.5)$	
			P1	for a complete process to find the cost of batteries from both shops using whole packs eg " 8 " $\times 1.6 (= 12.8)$ and " 5 " $\times 2.7 (= 13.5)$	
	(b)	No effect (supported)	C1	for shop A with both 12.8(0) and 13.5(0)	If figures are given as part of the answer they must be correct
			C1	(ft) for "has no effect" with reason	
			<p>Acceptable examples No, since A is 12 and B is 13.5(0) No, since A is just 80(p) less and B is the same. No, since A is less and B has not changed. No, since A is 1.5(0) less No, since 40(p) is less than 45(p) No, as batteries in B are 5p more</p> <p>Not acceptable examples Yes There is no change (unsupported) No, since A is less (incomplete)</p>		