CALCULATIONS PROBLEMS

Pearson Edexcel – Monday 8 June 2020 - Paper 3 (Calculator) Higher Tier

1.

4	(a)	Yes (supported)	P1	for start of process, eg 5×9 (= 45) **or** 10×14 (= 140) **or** 5×2 (= 10 (kg)) **or** $3 \div 2$ (= 1.5 (boxes))	Accept values rounded or truncated to 1dp in both (a) and (b). Ignore units
			P1	for process using ratio of areas, eg "140" ÷ "45" (= 3.1...) **or** for using ratio of amount of seed eg "10" ÷ 3 (= 3.3...) **or** for finding coverage for 1 kg of grass seed, eg "45" ÷ 3 (= 15 (m^2))	
			P1	for process to find amount of seed needed, eg "140" ÷ "45" × 3 (= 9.3...kg) **or** "140" ÷ "45" × "1.5" (= 4.6...(boxes)) oe **or** "15" × 2 (= 30 (m^2 per box)) **and** "140" ÷ "30" (= 4.6...(boxes)) **or** for process to find area that can be seeded, eg "10" ÷ 3 × "45" (= 150 (m^2)) **or** "140" ÷ "10" (= 14 (m^2)) oe	Accept 9.4 Accept 4.7
			C1	for "Yes" supported by correct figures eg 4.6...(and 5), **or** 9.3...and 10 **or** 150 and 140 (or 140 to 148.5) **or** 15 and 14	
	(b)	Yes, (does not have enough) (supported)	C1	for reasoning supported with correct figures, eg does not have enough seed and compares 9 (kg) with 9.3…(kg) or 4.5 (boxes) with 4.6… (boxes) or 135 (m^2) with 140 (m^2) ft from (a)	Values used in (a) do not need repeating in (b) as long as intention is clear

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2.

2	(a)	600	P1	for starting process to calculate amount of flour eg $60 \div 15$ (= 4) **or** 3×50 (= 150)	4 implied by 200g of sugar
			P1	for complete process eg $\frac{60}{15} \times$ "150"	
			A1	cao	
	(b)	2	P1	for process to calculate amount of butter eg $\frac{60}{15} \times 2 \times 50$ (= 400)	
				OR for process to calculate the number of packs of butter needed eg [butter] ÷ 250	[butter] must be clearly stated or calculated, may be seen in part (a)
			A1	cao	2 must not come from incorrect working

Pearson Edexcel - Thursday 6 June 2019 - Paper 2 (Calculator) Higher Tier

3.

4	8	P1	for working with volume of the cuboid, eg $30 \times 6 \times 19$ (= 3420) **OR** for using $\frac{2}{3}$ with one dimension, eg. $30 \times 2 \div 3$ (= 20)	For P marks, ignore attempts at unit conversion
		P1	for "3420" × 2 ÷ 3 (= 2280) **or** "3420" ÷ 3 (= 1140) **OR** "20" × 6 × 19 (= 2280) **OR** "3420" ÷ 275 (= 12.4… = 12 cups)	
		P1	(dep on P2) for "2280" ÷ 275 (= 8(.29...)) **or** "1140" ÷ 275 (= 4(.14...)) **OR** "12" × 2 ÷ 3 **OR** for 275 × 8 (= 2200) **or** 275 × 9 (= 2475)	
		A1	cao	

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4.

5	No (supported)	P1 P1 P1 C1	calculates area of trapezium eg ½ × 7 × (10+16) (= 91) for division by coverage eg ÷2 or [area of trapezium] ÷ 2 (= 45.5) or process to find coverage per tin eg 5 × 2 (= 10) for division to find the number of tins eg ÷5 or "45.5" ÷ 5 (= 9.1) **or** [area of trapezium] ÷ "10" (= 9.1) (dep on at least P2) for a process to multiply a whole number of tins (rounded up) by 16.99 for 'No' supported by correct figures eg 169.9 or 90 **and** 91	for process to find number of tins bought eg 160 ÷ 16.99 = 9 tins for using whole no. of tins to find total litres eg 9 × 5 (= 45) (dep on at least P2) for a process to find the total coverage eg "45" × 2 (= 90)	[area of trapezium] needs to be clearly stated if the process of finding the area is not clear There must be a conclusion ("No" or equivalent wording) including the figure 169.9 and working showing processes followed.

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5.

8	8	P1 P1 P1 P1 A1	process to start the problem eg $xy = 45$ **and** $xz = 15$ **and** $yz = 27$ **or** 5 × 9 (=45) **and** 3 × 9 (=27) **and** 3 × 5 (=15) **or** 3, 5 and 9 stated for 3 × 5 × 9 (=135) **or** 2 of "9" ÷ 2.5 (=3.6) **or** "5" ÷ 2.5 (=2) **or** "3" ÷ 2.5 (=1.2) for 2.5^3 (=15.625) **or** all of "9" ÷ 2.5 (=3.6) **and** "5" ÷ 2.5 (=2) **and** "3" ÷ 2.5 (=1.2) for a complete process to find the number of cubes possible eg [volume] ÷ "15.625" (=8.64) **or** "3.6" × "2" × "1.2" (=8.64) cao	Maybe seen on diagram [Volume] must come from multiplying together what they clearly indicate as the 3 dimensions of the cuboid. The three dimensions cannot be 45, 27 and 15

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6.

14	240	M1 A1	for start to method to find total number of matches, eg 16 × 15 or $16^2 - 16$ or 16 × 15 × 2 (= 480) or $\frac{16 \times 15}{2}$ (= 120) cao	Credit complete listing strategies

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7.

9		22.5	P1	for process to find James' speed eg $50 \div 2.5 (=20)$ **or** $50 \div 150 (=\frac{1}{3})$
			P1	for process to find James' time for 15 km eg $15 \div$ "20" $(=0.75)$ **or** $15 \div \frac{1}{3} (=45)$
			P1	for process to find Peter's time for 15 km eg "45" − 5 (=40)
			P1	for process to find Peter's speed eg $15 \div$ "40" **or** $15 \div \frac{"40"}{60}$
			A1	oe

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8.

13	(a)		120	P1	for $\frac{4\times450}{15}$ **or** $\frac{4}{15}=\frac{x}{450}$ oe
				A1	cao
	(b)		$\frac{165}{450}$	P1	5.5 **or** 6.5 **or** 165 **or** $\frac{5\times450}{15} (=150)$ and $\frac{6\times450}{15} (=180)$
				A1	for $\frac{165}{450}$ oe

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9.

22		2, 14.5	P1	for scale factor of $\frac{12}{3}$ **or** $\frac{3}{12}$ **or** $\frac{15}{12}$ **or** $\frac{12}{15}$ **or** $\frac{8}{12}$ **or** $\frac{12}{8}$ **or** $\frac{15}{8}$ oe **or** correctly identifies 2 pairs of corresponding sides
			A1	for $x=2$
			P1	for complete method to find other value for x eg $\frac{15}{8}\times12-8$
			A1	for $x = 14.5$
			C1	Describes both assumptions for similarity

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10.

23		$x > 2$	P1	for process to derive algebraic expressions for area of both rectangle and triangle eg $(x-1)(3x-2)$ and $(2x \times x) \div 2$ (condone missing brackets)
			M1	for method to rearrange inequality to $2x^2-5x+2>0$ oe providing in the form $ax^2 + bx + c > 0$
			M1	for a correct method to solve $2x^2-5x+2>0$
			M1	for establishing critical values 2 and $\frac{1}{2}$
			A1	$x > 2$

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11.

9		65.60	P1	for start in using inverse proportionality, eg $5 \times 4.5 (= 22.5)$ or $4.5 = \frac{k}{5}$ or $5 \times 4.5 \times 60 (= 1350)$ or $\frac{5}{3}$ or $\frac{3}{5}$
			P1	for process to find number of hours for each cleaner today, eg $\frac{22.5}{3} (= 7.5)$
			A1	for 65.6(0) (SC B2 for 61.5(0))

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12.

18		0.98	B1	cao

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13.

16		Yes and correct working	B1 P1 A1	for 147.5 or 148.5 or 148.4999... or 11.75 or 11.85 or 11.84999... substitutes $11.8 < UB \leq 11.85$ and $147.5 \leq LB < 148$ in the formula to work out petrol consumption for 'Yes' and 8.03(3898305...) from correct working

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14.

9		500	M1 A1	recognition of 1.2 or 120% oe eg $600 \div 1.2$ oe or $x \times 1.2 = 600$ oe or 120%=600 cao

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15.

13 (a)		$y = \frac{9}{x^2}$	M1 A1	begins to work with $y = \frac{k}{x^2}$ oe e.g. subs of a pair of numbers into $y = \frac{k}{x^2}$ or states k=9 for $y = \frac{9}{x^2}$ Accept $y = 9x^{-2}$
(b)		$\frac{3}{4}$	M1 A1	ft (dep on previous M1) subs $y = 16$ into proportional formula of the form $y = \frac{k}{x^2}$ oe oe

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16.

4 (a)		57.1	P1 P1 A1	for a process to find time from Liverpool to Manchester, eg. $56 \div 70$ (= 0.8 (hrs) or 48 (mins)) for a process to find total distance, eg. 56 + 61 (= 117) or the total time, eg. "48" + 75 (= 123) or "0.8" + $\frac{75}{60}$ (= 2.05) with consistent units of time (dep P2) for a correct process to find average speed with consistent units of time, eg."117" ÷ "2.05" or "117" ÷ "123" for answer in the range 57 to 57.1
(b)		explanation	C1	for explaining that the time taken for the two parts of the journey must be the same or the distance from Leeds to York is $\frac{3}{4}$ of the distance from Barnsley to Leeds

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17.

10	(a)		Jupiter	B1	for Jupiter (accept 1.898×10^{27})
	(b)		4.5388×10^{24}	B1	for 4.5388×10^{24} oe (e.g. 45.388×10^{23})
	(c)		Yes (supported)	M1	for $(4.35 \times 10^{9}) \div (4.14 \times 10^{7})$ (= 105(.07..)) or $(4.14 \times 10^{7}) \times 100$ (= 4.14×10^{9}) or $(4.35 \times 10^{9}) \div 100$ (= 4.35×10^{7})
				A1	for Yes with correct supporting evidence

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18.

4		68	P1	for a process to find the number of vanilla cakes, eg 420 × 2 ÷ 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

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19.

5		500g	P1	$\frac{1}{8} \times 160$ (=20)
			P1	'20' × 25
			A1	500 (or 0.5)
			B1	Correct units g (or kg)

Pearson Edexcel - Specimen Papers Set 2 - Paper 1 (Non-Calculator) Higher Tier

20.

7	$\frac{90}{2} \times 3 = 135$ $\frac{84}{60} \times 100 = 140$	Combination with reason	P1	Links either $\frac{2}{3}$ with 90 and 60% with 84
			P1	Process to find original price of microwave oven eg $\frac{90}{2} \times 3$ (=135)
			P1	Process to find original price of combination oven eg $\frac{84}{60} \times 100$ (=140)
			A1	Correct original prices £135 and £140 with interpretation of results to conclude that combination oven had greater normal price.

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21.

6	(a)		1.95	M1 M1 A1	method to find one temperature eg 4500 ÷ 1200 for complete method cao
	(b)		D	B1	cao

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22.

12		37.5 mph	P1 P1 P1 C1	shows process of finding first distance eg 50 × 3 (=150) shows process of finding time for second part eg 150 ÷ 30 (=5 h) shows process of working with av sp. (dist ÷ time) (= 300÷(3+5) = 300÷8) conclusion with supporting evidence, correct notation and units eg 37.5 mph

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23.

7		No with supporting evidence	P1 P1 C1	for the start of a correct process, eg. two of x, $2x$ and $2x+7$ oe or a fully correct trial, eg. 5 + 10 + 17 = 32 (dep on P1) for setting up an equation using 3 algebraic terms, eg. $x + 2x + 2x + 7 = 57$ or a correct trial totalling 57, eg. 10 + 20 + 27 = 57 for a correct deduction from correct answers, eg. Chris has 20 so it is impossible for all to have 20 since 60 marbles would be needed.

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24.

16		84	M1 P1 A1	for correct interpretation of given information leading to a method to find fd, eg. 20 ÷ 100 (thousand) or for an acceptable key for a process to find at least two required frequencies, eg. 0.8 × 50 (= 40), 0.6 × 50 (= 30), 0.14 × 100 (= 14) for 84 cao

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25.

22		1.5	B1 M1 A1	for any correct bound clearly identified, eg. 99.65 →x→ 99.75 or 66.5 → y→ 67.5 (dep on B1) for method to find UB, eg. "99.75" ÷ "66.5" for 1.5

Pearson Edexcel - Specimen Papers Set 1 - Paper 3 (Calculator) Higher Tier

26.

20	$\sqrt{}$(253.5 ÷ 6) $6.5^3 \times 2 = 549.25$ 549.25 ÷ 10 =54.925	55	P1 a process to find the scale factor of 6.5 P1 for a full process to find the amount of clay required C1 for stating 55 bags

Pearson Edexcel - Sample Paper 1 - (Non-Calculator) Higher Tier

27.

7		400	P1	Start to process eg. 1200 ÷ 60
			A1	400 oe (accept number of whole pizzas eg. 400÷4 = 100 with 4 people per pizza)
			C1	Eg. Assumption that sample is representative of population – it may not be all 1200 people are going to the party – need less pizza if they don't, assume 4 people per pizza – if different may need more/fewer pizzas

Pearson Edexcel - Sample Paper 2 - (Calculator) Higher Tier

28.

4		conclusion	P1	30 ÷ 70 (=0.428)	26 ÷ 60 (=0.4333…)	30 ÷ 26 (=1.153…)
		(supported)	P1	60 × "0.428…"	70 ×"0.4333…"	60× "1.153…"
			C1	for conclusion linked to 25.7 mins, 30.3 miles or 69.2 mph		

Pearson Edexcel - Sample Paper 3 - (Calculator) Higher Tier

29.

5		Have a water meter (from working with correct figures)	P1	Process to find number of litres eg. 180 ÷ 1000
			P1	Full process to find cost per day
			P1	Full process to find total cost of water used per year (accept use of alternative time period for both options)
			P1	Full process with consistent units for total cost of water
			A1	Correct decision from correct figures (88.13154 or correct figure for their time period)

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30.

*7		Conclusion (supported)	5	M1 for finding the area of one rectangle which is not 6 × 10 eg 2×2.5 (=5) or 4×10 (=40) or 2.5×6 or 5×2 M1 for a complete method to find the total area eg 5+5+40 or 60−10 (=50) M1 for a complete method to find the number of tins needed eg "50" ÷ 5 ÷ 2.5 (=4) OR for a complete method to find the number of litres needed. eg "50" ÷ 5 (=10) OR for a complete method to find the area covered by 3 tins eg 3×2.5×5 (=37.5) A1 for 50 (m^2) **and** 4 (tins needed) **or** for 10 (litres) **and** 7.5 (litres) **or** for 50(m^2) **and** 37.5(m^2) C1 (dep M2) for a conclusion supported by their calculations

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31.

4		400 ÷ 18 = 22(.2) 499 ÷ 20 = 24(.95) or 25 600 ÷ 26 = 23(.07…) (or equivalent in £) 18 ÷ 4 = 4.5 20 ÷ 4.99 = 4(.008…) 26 ÷ 6 = 4.3(333…)	18 pack with supporting working	4	M1 for a method that would result in at least two values that could be used to compare two packs M1 for a complete method that would result in values that could be used to compare all three packs A1 for all fully correct figures suitable for comparison C1 ft (dep on M2) for comparison of their values with a correct conclusion from their figures

Pearson Edexcel - Thursday 9 June 2016 - Paper 2 (Calculator) Higher Tier

32.

6	(a)		20.3	2	M1 for $\frac{50}{1.57^2}$ oe A1 for answer in range 20.2 to 20.3
	(b)		68.04	2	M1 for (m =) $1.8^2 \times 21$ oe A1 for 68.04
	(c)		2.61	3	M2 for a complete method to find 145% of 1.8, eg. $\frac{145}{100} \times 1.80$ oe (M1 for a method to find 45% of 1.8, eg. $\frac{45}{100} \times 1.80$ (= 0.81) or for a multiplication factor of 1.45) A1 cao

Pearson Edexcel - Thursday 9 June 2016 - Paper 2 (Calculator) Higher Tier

33.

11			42.28	5	M1 for method to find weekly mileage, eg. 18 × 2 × 5 (= 180) or weekly car park charge, eg. 3.50 × 5 (= 17.50) M1 for method to find fuel used in a relevant journey, eg. "180" ÷ 45.2 (= 3.9823 gallons) or 18 ÷ 45.2 (= 0.39823 gallons) M1 for a correct use of the conversion factor to convert between gallons and litres, eg. "3.9823" × 4.546 (= 18.1 …. litres) or "0.39823" × 4.546 (= 1.81 …. litres) or 1.369 × 4.546 (= 6.22... £/gallon) or 45.2 ÷ 4.546 (= 9.94… miles/litre) M1 for a method to find the cost of a relevant journey, eg. "18.1…" × 1.369 (= 24.78 …) or "1.81…" × 1.369 (= 2.478 …) or "3.9823" × "6.22..." (= 24.78...) A1 for answer in the range 42.26 to 42.3(0) NB candidates could work in litres or in gallons and/or could work in £ or p

Pearson Edexcel - Wednesday 4 November 2015 - Paper 1 (Non-Calculator) Higher Tier

34.

*9			NO with evidence	4	M1 for 50 × 40 × 30 (=60000) M1 for "60000" ÷ 3000 (=20) M1 for "20" × £3.50 C1 eg for 70 and comparison resulting in NO OR M1 for £60 ÷ 3.50 (=17 bottles) M1 for "17" × 3000 (=51000) M1 for 50 × 40 × 30 (=60000) C1 eg for 51000 and 60000 and comparison resulting in NO

Pearson Edexcel - Friday 6 November 2015 - Paper 2 (Calculator) Higher Tier

35.

3			32 64 29	4	M1 for $2y$ or $y - 3$ M1 for adding their three expressions and setting equal to 125 M1 for correct method to solve $ay + b = 125$ A1 Ali 32, Bhavara 64 and Ceris 29

Pearson Edexcel - Thursday 4 June 2015 - Paper 1 (Non-Calculator) Higher Tier

36.

*4		1195 4780 + 5975 2 3 9 0 4 0 6 1 8 2 5 1 0 1 5 4 5 5 9 7 5 200 30 9 20 4000 600 180 5 1000 150 45 4000 + 1000 + 600 + 150 + 180 + 45 = 5975	Kirsty's Plants with correct calculations	5	M1 for complete method with relative place value correct. Condone 1 multiplication error, addition not necessary. M1 (dep) for addition of all the appropriate elements of the calculation or digits 5975 M1 for a complete method to find 120% of £52.50 A1 for 59.75 and 63(.00) C1 (dep on M2) for correct conclusion for their figures **OR** M1 for the start of a method to divide £52.50 by 25, eg. 2 rem 2 M1 for a complete method to divide £52.50 by 25, condone one arithmetic error, or digits 21 M1 for a complete method to find 120% of '£2.10' A1 for 2.52 C1 (dep on M2) for correct conclusion for their figures **OR** M1 for a complete method to find 120% of £52.50 M1 for the start of a method to divide '63' by 25, eg. 2 rem 13 M1 for a complete method to divide '63' by 25, condone one arithmetic error, or digits 252 A1 for 2.52 C1 (dep on M2) for correct conclusion for their figures

Pearson Edexcel - Monday 8 June 2015 - Paper 2 (Calculator) Higher Tier

37.

*5		$1155 \div 15 = 77$ $x + 2x + x - 7 = 77$ $4x - 7 = 77$ $4x = 84$; $x = 21$ OR $15x + (15 \times 2x) + 15(x - 7) = 1155$ $60x - 105 = 1155$ $60x = 1260$ $x = 21$	Redlands 21 St Samuels 42 Francis Long 14	5	M1 for $2x$ or $x - 7$ M1 for $1155 \div 15$ (= 77) M1 (dep M2) for equation summing their three expressions to "77" A1 for 21, 42 and 14 C1 for fully correct answer with correct labels OR M1 for an expression for the cost of the pupils from Redlands M1 for expression for the cost of the pupils from either St Samuels or Francis Long M1 (dep M2) for equation summing their three expressions to 1155 A1 for 21, 42, and 14 C1 for fully correct answer with correct labels

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38.

21		$3^2 \times 180$	1620	2	M1 for using a scale factor of 3^2 (= 9) A1 cao

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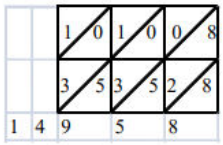
39.

22			1.25	3	M1 100 – 12 (= 88) or 0.88 or 1.1 ÷ 88 (= 0.0125) M1 for complete method, eg 1.1 ÷ 0.88 A1 cao (SC B2 for 1250 as answer)

Pearson Edexcel - Wednesday 5 November 2014 - Paper 1 (Non-Calculator) Higher Tier

40.

*6		554 ×27 3878 11080 14958  	Yes with correct working	4	M1 for a complete method with relative place value correct. Condone 1 multiplication error, addition not necessary. M1 (dep) for addition of all the appropriate elements of the calculation. A1 for £149.58 or 42p (spare) C1 ft (dep on M1) for correct decision for their total cost **OR** M1 for a complete grid with not more than 1 multiplication error, addition not necessary M1 (dep) for addition of all the appropriate elements of the calculation A1 for £149.58 or 42p (spare) C1 ft (dep on M1) for correct decision for their total cost **PTO**
		500 **50** **4** × 10 1000 80 **2** 000 **0** 3500 350 28 **7** 10000 1000 3500 350 80 28 14958			**OR** M1 for sight of a complete partitioning method, condone 1 multiplication error, addition not necessary. M1 (dep) for addition of all the appropriate elements of the calculation. A1 for £149.58 or 42p (spare) C1 ft (dep on M1) for correct decision for their total cost **OR** M1 for 150.0... ÷ 27 at least 5 seen and 15 carried or $\frac{50}{9}$ M1 (dep) for full correct process to divide 150 by 27 or $5\frac{5}{9}$ A1 for £5.55 or £5.56 or £5.55... C1 ft (dep on M1) for correct decision for their plant cost **OR** M1 for 150.0…÷ 5.54 at least 2 seen and 392 carried M1 (dep) for full correct process to divide 150 by 5.54 A1 for 27 (.07…) C1 ft (dep on M1) for correct decision for their number of plants

Pearson Edexcel - Wednesday 5 November 2014 - Paper 1 (Non-Calculator) Higher Tier

41.

11			900	4	M1 for 0.2 × 7000 (=1400) or 1.2 × 7000 (=8400) oe M1 for 7000 + "1400" − 3000 (=5400) oe M1 for "5400" ÷ 6 A1 cao

Pearson Edexcel - Wednesday 5 November 2014 - Paper 1 (Non-Calculator) Higher Tier

42.

14			25	4	M1 for 600 ÷ 4 (=150) M1 for 4500 ÷ "150" (=30) M1 for 750 ÷ "30" A1 for 25 with supporting working **OR** M1 for 4500 ÷ 750 (=6) or 750 ÷ 4500 (=$\frac{1}{6}$) M1 for 600 ÷ 4 (=150) or 600 ÷ "6" (=100) or 600 × "$\frac{1}{6}$" (=100) M1 for "150" ÷ "6" or "100" ÷ 4 or 150 × "$\frac{1}{6}$" A1 for 25 with supporting working **OR** M1 for 4500 ÷ 750 (=6) or 750 ÷ 4500 (=$\frac{1}{6}$) M1 for $\frac{1}{4} \times \frac{1}{"6"} \left(= \frac{1}{24}\right)$ M1 for "$\frac{1}{24}$" × 600 A1 for 25 with supporting working

Pearson Edexcel - Friday 7 November 2014 - Paper 2 (Calculator) Higher Tier

43.

1	(a)		360	2	M1 30 ÷ 10 (= 3) or 120 ÷ 10 (=12) or 120 + 120 + 120 oe A1 cao
	(b)		25	2	M1 for $\frac{750}{300}$ (=2.5) oe A1 cao

Pearson Edexcel - Friday 7 November 2014 - Paper 2 (Calculator) Higher Tier

44.

*11			No + reason	4	M1 for intention to find the circumference eg 140 × π (= 439.82...) A1 for circumference = 439 - 440 M1 (dep on M1) for a complete method shown that could arrive at two figures that are comparable eg "C"÷60×12 (=87.96..) , 90÷12×60 (=450) , 90×60÷"C" (=12.27), "C"÷90×12 (=58.64..) C1 (dep on both M marks) for No and explanation that shows a correct comparison eg only 84 people could sit around the tables or that 13 tables are needed or that 480 cm is needed.

Pearson Edexcel - Monday 9 June 2014 - Paper 1 (Non-Calculator) Higher Tier

45.

4			25.60	4	M1 for a correct method to find $\frac{1}{3}$ of 24 (=8) or $\frac{2}{3}$ of 24 (=16) M1 for a correct method to find 60% (= 7.2) or 40% (= 4.8) of 12 or 60% (=14.4) or 40% (= 9.6) of 24 M1 (dep on at least M1) for a method to find the sum of their discounted adult ticket + 2 × their discounted child ticket A1 25.6(0)

Pearson Edexcel - Friday 13 June 2014 - Paper 2 (Calculator) Higher Tier

46.

11			186.20	5	M1 for use of consistent units to find volume, 11 × 4 × 0.06 (=2.64) or 1100× 400 × 6 (=2640000) M1 (dep on vol calculation) for attempt to find number of bags needed, eg "2.64" ÷ 0.4 (=6.6 →7) M1 for the cost of gravel before discount eg "6.6" × 38 or "7" × 38 M1 for attempt to find the total cost after discount"266" × 0.7 oe A1 for 186.2(0) OR M1 for cost of gravel per bag after discount, 38 × 0.7 (=26.60) M1 for use of consistent units to find volume, 11 × 4 × 0.06 (=2.64) or 1100× 400 × 6 (=2640000) M1 (dep on vol calculation) for attempt to find number of bags needed, eg "2.64" ÷ 0.4 M1 for total cost of gravel after discount "7" × "26.6" A1 for 186.2(0)

Pearson Edexcel - Wednesday 6 November 2013 - Paper 1 (Non-Calculator) Higher Tier

47.

1			90 450 225 1.5 960	3	M1 for 6 ÷ 4 (= 1.5) or 4 ÷ 6 (= 0.66..) or ÷4 × 6 oe or sight of any one of the correct answers A1 for three correct A1 for all correct

Pearson Edexcel - Wednesday 6 November 2013 - Paper 1 (Non-Calculator) Higher Tier

48.

7	(i)	20, 40, 60 12, 24, 36, 48, 60 20 = 4×5 = 2×2×5 12 = 4×3 = 2×2×3	3 and 5 or any multiple of 3, 5	4	M1 attempts multiples of both 20 and 12 (at least 3 of each shown but condone errors if intention is clear) or identifies 60 or a multiple of 60 M1 (dep on M1) for a division by 20 or 12 or counts up 'multiples' or identifies a common multiple (implied if one answer is correct or answers reversed) A1 cheese slices (packets) 3, burgers (boxes) 5 or any multiple of 3, 5 OR M1 for expansion of either 20 or 12 into factors M1 for demonstration that both expansions include 4 (or 2 × 2) A1 cao for cheese slices (packets) 3, burgers (boxes) 5
	(ii)		60		B1 for 60 or ft from their correct answer in (i) or ft 'common multiple'

Pearson Edexcel - Friday 8 November 2013 - Paper 2 (Calculator) Higher Tier

49.

6		19	4	M1 for 130 − 96 (=34) M1 for 73 − 55 (=18) M1 for '34' − 9 − '18' + 12 A1 cao **OR** M1 for 96 − 55 − 12 (=29) M1 for 9 + '29' (=38) M1 for 130 − 73 − '38' A1 cao

Pearson Edexcel - Friday 8 November 2013 - Paper 2 (Calculator) Higher Tier

50.

*13	Distance ÷ speed: 30 ÷ 70 (= 0.42-0.43); Distance ÷ time: 30 ÷ 26 (=1.15…); Speed × time: = 70 × 26 (=1820 mins); mph to miles/min =70÷ 60 (=1.16-1.17); Minutes to hours is 26 ÷ 60 (=0.43…)	No with correct figure	3	M1 for a calculation which uses the Time × Speed = Distance relationship **OR** a conversion of units eg between hours & minutes or between mph & miles per min M1 for a calculation involving both of the above C1 for "no" with a correct calculation, with units, from working: 25.2-25.8 minutes, 30.1-30.8 miles, 69-69.3 mph NB: 70 ÷ 26 × 30 as a single stage calculation gets 0 marks

Pearson Edexcel - Friday 8 November 2013 - Paper 2 (Calculator) Higher Tier

51.

23		15	2	M1 for $\frac{134}{1065} \times 120$ **or** 15.098... oe A1 cao

Pearson Edexcel - Tuesday 11 June 2013 - Paper 1 (Non-Calculator) Higher Tier

52.

*Q15			No + explanation	3	M1 for $500 \times 9 \times 10^{-3}$ oe A1 for 4.5 C1 (dep M1) for correct decision based on comparison of their paper height with 4 **OR** M1 for 4 ÷ 500 oe A1 for 0.008 C1 (dep M1) for correct decision based on comparison of their paper thickness with 0.009 **OR** M1 for $4 \div (9 \times 10^{-3})$ oe A1 for 444(.4...) C1 (dep M1) for correct decision based on comparison of their number of sheets of paper with 500

Pearson Edexcel - Friday 14 June 2013 - Paper 2 (Calculator) Higher Tier

53.

*2			Not enough mincemeat since 600<700 OR Only able to make 38 mince pies since insufficient mincemeat	4	M1 for 45 ÷ 18 (= 2.5) M1 for 2.5 used as factor or divisor A1 for ingredients as 562.5 and 875 and 250 and 700 and 2.5 (accept 2 or 3) OR for availables as 400, 400, 200 240, 2.4 (accept 2 or 3) C1 ft (dep on at least M1) for identifying and stating which ingredient is insufficient for the recipe (with some supportive evidence) OR M1 for a correct method to determine the number of pies one ingredient could produce M1 for a correct method to determine the number of pies **all** ingredient could produce A1 for 80 and 51 and 90 and 38 and 108 C1 ft (dep on at least M1) for identifying and stating which ingredient is insufficient for the recipe. (with some supportive evidence)

Pearson Edexcel - Friday 14 June 2013 - Paper 2 (Calculator) Higher Tier

54.

8			10752	4	M1 for splitting the pentagon (or show the recognition of the "absent" triangle) and using a correct method to find the area of one shape M1 for a complete and correct method to find the total area M1 (dep on at least one prev M1) for multiplying their total area by 2.56 (where total area is a calculation involving at least two areas) A1 cao

Pearson Edexcel - Friday 14 June 2013 - Paper 2 (Calculator) Higher Tier

55.

21			48 or 49	2	M1 for $\frac{460}{460+320+165}\times 100$ (=48.67 ….) or $\frac{460}{9.5}$ or $\frac{460}{9.45}$ A1 for 48 or 49

Pearson Edexcel - Monday 4 March 2013 - Paper 2 (Calculator) Higher Tier

56.

*2			No + comparison	3	M1 for a correct start to the process eg. $\frac{225}{9}$ **or** $\frac{475}{225}$ **or** $\frac{20}{9}$ **or** $\frac{475}{20}$ M1 for completion of a fully correct method that will lead to an appropriate comparison C1 (dep on M2) for a correct statement with conclusion with 500 g **or** 25g more needed **or** 19 cakes **or** 25g **and** 23.75g SC :If **no** working then B1 for a correct statement with correct figures and units

Pearson Edexcel - Monday 4 March 2013 - Paper 2 (Calculator) Higher Tier

57.

6			414.96	5	M1 for a correct method to work out the amount of oil required to fill the tank M1 for a correct method to find the cost of oil required before the discount M1 for a correct method of finding 5% of their calculated cost M1 (dep on previous M1) for a correct method to find the discounted cost A1 for correct answer of 414.96 or 41496p **OR** M1 for a correct method of finding 5% of the cost of 1 litre of oil M1 (dep on previous M1) for a correct method to find the discounted cost of 1 litre of oil M1 for a correct method to work out the amount of oil required to fill the tank M1 for a correct method to find the discounted cost of the oil required A1 for correct answer of 414.96 or 41496p **OR** M1 for a correct method to work out the amount of oil required to fill the tank M1 for a correct method of finding 5% of their calculated amount of oil M1 (dep on previous M1) for a correct method to find the reduced amount of oil M1 for a correct method to find the cost of the reduced amount of oil A1 for correct answer of 414.96 or 41496p

Pearson Edexcel - Monday 4 March 2013 - Paper 2 (Calculator) Higher Tier

58.

23			11	2	M1 for a $\frac{68}{300}$ × 50 oe A1 for 11 (accept 12)

Pearson Edexcel - Tuesday 6 November 2012 - Paper 1 (Non-Calculator) Higher Tier

59.

1		180×1.5 40×1.5 110×1.5 30×1.5	Flour = 270 Ginger = 60 Butter = 165 Sugar = 45	3	M1 for ×24÷16 oe or 24/16 or 1.5 seen or 180 + 90 (=270) or 40 + 20 (=60) or 110 + 55 (=165) or 30 + 15 (=45) or sight of any one of the correct answers A2 for all 4 correct answers (A1 for 2 or 3 correct answers)

Pearson Edexcel - Tuesday 6 November 2012 - Paper 1 (Non-Calculator) Higher Tier

60.

3*			9	4	M1 for 7155 – 7095 or 60 seen or 7155×15 (or .15) or 7095×15 (or .15) or 107325 or 106425 or 1073.25 or 1064.25 M1 for '60' ×15 or 7155 ×15 – 7095 × 15 [or .15 instead of 15] A1 for 9 or 9.00 or 900 C1 (ft) for answer with correct units (money notation) identified as the answer.

Pearson Edexcel - Tuesday 6 November 2012 - Paper 1 (Non-Calculator) Higher Tier

61.

7		$\frac{9}{2}\times(12+18)=135$ 135 ÷ 20 = 6.75 (=7 bags) 7 × 4.99 OR $18\times9-\frac{1}{2}(6\times9)$ = 135 135 ÷ 20 = 6.75 (=7 bags) 7 × 4.99	34.93	4	M1 for $\frac{9}{2}\times(12+18)$ or $18\times9-\frac{1}{2}(6\times9)$ or $9\times12+\frac{1}{2}\times(18-12)\times9$ or 135 seen M1 (dep) for '135'÷ 20 or 6 or 7 seen M1 (dep on previous M1) for '6' × 4.99 or '7' × 4.99 A1 cao [SC: M1 for (12×9 + 6×9) ÷ 20 (= 162÷20) or 8 or 9 seen M1 (dep) for '8' × 4.99 or '9' × 4.99 OR M1 for (18×9 − 6×9) ÷ 20 (= 108÷20) or 5 or 6 seen M1 (dep) for '5' × 4.99 or '6' × 4.99]

Pearson Edexcel - Tuesday 6 November 2012 - Paper 1 (Non-Calculator) Higher Tier

62.

18			12	4	B1 for 60 seen M1 for (360 – 60) ÷ 2 (=150) M1 for 360 ÷ (180 – 150) or 150×n=180(n-2) oe A1 cao **OR** B1 for 60 seen M1 for 60 ÷ 2 (=30) M1 for 360 ÷ (60÷2) A1 cao **OR** M2 for 30 seen M1 for 360 ÷ 30 A1 cao

Pearson Edexcel - Thursday 8 November 2012 - Paper 2 (Calculator) Higher Tier

63.

*3		3×£193.86 = £581.58 £581.58 ×0.85=£494.343	£494.34	5	M1 3 × 193.86 (= 581.58) B1 ft correct discount % identified or used in working (may be identified in table) M1 '581.58'× '0.15' (=87.23(7)) M1 (dep on the previous M1) '581.58' − '87.23(7)' (= 494.34(3) **or** 494.35) C1 (dep on all method marks) for £494.34 **or** £494.35 identified as final answer with correct money notation **OR** M1 3 × 193.86 (= 581.58) B1 ft correct discount % identified or used in working (may be identified in table) M2 '581.58'× '0.85' (= 494.34(3)) (M1 '581.58' × '1.15' (=668.81(7)) C1 (dep on all method marks) for £494.34 **or** £494.35 identified as final answer with correct money notation **NB. Throughout, values may be rounded or truncated to 2 decimal places**

Pearson Edexcel - Thursday 8 November 2012 - Paper 2 (Calculator) Higher Tier

64.

7		17.8 ÷ 160 × 210 = 0.11125 × 210 = 23.3625 g **OR** 210 ÷ 160 × 17.8 = 1.3125 × 17.8 = 23.3625 g **OR** 210 − 160 (=50) $\frac{17.8}{160}\times$'50'(= 5.5625) 17.8 + 5.5625	23.3(625)	3	M1 17.8 ÷ 160 (=0.11125) **or** 17.8 × 210 (=3738) **or** 210 ÷ 160 (=1.3125) M1 (dep) '0.11125' × 210 **or** '3738'÷160 **or** '1.3125'× 17.8 A1 for answer in range 23.3 - 23.4 **OR** M1 for $\frac{17.8}{160}\times(210-160)(=5.5625)$ M1 (dep) for 17.8 + '5.5625' A1 for answer in range 23.3 - 23.4 **OR** M1 for correct method to find weight of 2 cm **or** 5 cm **or** 10 cm M1 (dep) for complete method A1 for answer in range 23.3 - 23.4

Pearson Edexcel - Monday 11 June 2012 - Paper 1 (Non-Calculator) Higher Tier

65.

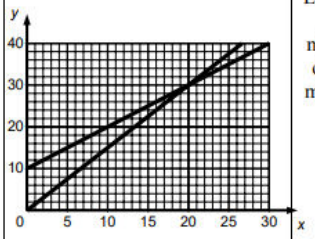
2	(a)	360 ÷ 60 = 6 300 ÷ 60 = 5 6 × 5 =	Yes and 30	3	M1 for dividing side of patio by side of paving slab eg. 360 ÷ 60 **or** 300 ÷ 60 **or** 3.6 ÷ 0.6 **or** 3 ÷ 0.6 **or** 6 and 5 seen (may be on a diagram) **or** 6 divisions seen on length of diagram **or** 5 divisions seen on width of diagram M1 for correct method to find number of paving slabs eg. (360 ÷ 60) × (300 ÷ 60) oe **or** 6 × 5 **or** 30 squares seen on diagram (units may not be consistent) A1 for Yes **and** 30 (**or** 2 extra) with correct calculations **OR** M1 for correct method to find area of patio **or** paving slab eg 360 × 300 **or** 108000 seen **or** 60 × 60 **or** 3600 seen **or** 3.6 × 3 **or** 10.8 seen **or** 0.6 × 0.6 **or** 0.36 seen M1 for dividing area of patio by area of a paving slab eg. (3.6 × 3) ÷ (0.6 × 0.6) oe (units may not be consistent) A1 for Yes **and** 30 (**or** 2 extra) with correct calculations **OR** M1 for method to find area of patio or area of 32 slabs eg. 60 × 60 × 32 **or** 360 × 300 M1 for method to find both area of patio **and** area of 32 slabs eg. 60 × 60 × 32 **and** 360 × 300 (units may not be consistent) A1 for Yes **and** 115200 **and** 108000 **OR** Yes **and** 11.52 **and** 10.8 **NB : Throughout the question, candidates could be working in metres or centimetres**

	(b)	1726 25890 27616 **8 6 3** **2** 2 4 1 8 9 **3** **7** 1 6 1 2 6 **2** 6 1 6 24000+1800+90+1600+120+6 = 27616	276.16	3	M1 for complete correct method with relative place value correct. Condone 1 multiplication error, addition not necessary. **OR** M1 for a complete grid. Condone 1 multiplication error, addition not necessary. **OR** M1 for sight of a complete partitioning method, condone 1 multiplication error. Final addition not necessary. A1 for digits 27616 A1 ft (dep on M1) for correct placement of decimal point after addition (of appropriate values) (SC: B1 for attempting to add 32 lots of 8.63)

	800	60	3
30	24000	1800	90
2	1600	120	6

Pearson Edexcel - Monday 11 June 2012 - Paper 1 (Non-Calculator) Higher Tier

66.

3	(a)		10	1	B1 cao
	(b)	 **Miles** 0 10 20 30 40 50 **Ed** 0 15 30 45 60 75 **Bill** 10 20 30 40 50 60	Ed is cheaper up to 20 miles, Bill is cheaper for more than 20 miles	3	M1 for correct line for Ed intersecting at (20,30) ±1 sq tolerance **or** $10 + x = 1.5x$ oe C2 (dep on M1) for a correct full statement ft from graph eg. Ed cheaper up to 20 miles **and** Bill cheaper for more than 20 miles (C1 (dep on M1) for a correct conclusion ft from graph eg. cheaper at 10 miles with Ed ; eg. cheaper at 50 miles with Bill eg. same cost at 20 miles; eg for £5 go further with Bill **OR** A general statement covering short **and** long distances eg. Ed is cheaper for shorter distances **and** Bill is cheaper for long distances) **OR** M1 for correct method to work out Ed's delivery cost for at least 2 values of n miles where $0 < n \leq 50$ **OR** for correct method to work out Ed and Bill's delivery cost for n miles where $0 < n \leq 50$ C2 (dep on M1) for 20 miles linked with £30 for Ed and Bill with correct full statement eg. Ed cheaper up to 20 miles **and** Bill cheaper for more than 20 miles (C1 (dep on M1) for a correct conclusion eg. cheaper at 10 miles with Ed; eg. cheaper at 50 miles with Bill eg. same cost at 20 miles; eg for £5 go further with Bill **OR** A general statement covering short **and** long distances eg. Ed is cheaper for shorter distances **and** Bill is cheaper for long distances) SC : B1 for correct full statement seen with no working eg. Ed cheaper up to 20 miles **and** Bill cheaper for more than 20 miles QWC: Decision and justification should be clear with working clearly presented and attributable

Pearson Edexcel - Monday 11 June 2012 - Paper 1 (Non-Calculator) Higher Tier

67.

6	(a)		30	2	M1 for 25 ÷ 10 or 2.5 seen or 10 ÷ 25 or 0.4 seen or 12 + 12 + 6 oe or a complete method eg. 25 × 12 ÷ 10 oe A1 cao
	(b)	*1000 ÷ 200 × 12*	60	2	M1 for 500÷50 or 1000÷200 or 500÷10 OR correct scale factor clearly linked with one ingredient eg. 10 with sugar or 5 with butter or flour or 50 with milk OR answer of 120 or 600 A1 cao

Pearson Edexcel - Monday 11 June 2012 - Paper 1 (Non-Calculator) Higher Tier

68.

12		$6 \times 10 \times 8 = 480$ $480 \div (6 \times 20) =$	4	3	M1 for $6 \times 10 \times 8$ **or** 480 seen M1 (dep) for '480' ÷ (6 × 20) oe A1 cao **OR** M1 for $20 \div 10$ (=2) **or** $10 \div 20$ $(=\frac{1}{2})$ **or** $\frac{8}{20}$ oe **or** $\frac{20}{8}$ oe M1 (dep) for $8 \div$ '2' **or** $8 \times \frac{1}{2}$ **or** $\frac{8}{20} \times 10$ oe **or** $10 \div \frac{20}{8}$ A1 cao SC : B2 for answer of 16 coming from $\frac{20 \times 8 \times 6}{10 \times 6}$ oe

Pearson Edexcel - Wednesday 13 June 2012 - Paper 2 (Calculator) Higher Tier

69.

5		$(17 - 2.8) \times 9.5 = 134.9$ $\pi \times (3.8 \div 2)^2 = 11.34...$ $134.9 - 2 \times 11.34... = 112.21$ $112.21 \div 25 = 4.488$	5	5	M1 for $(17 - 2.8) \times 9.5$ (=134.9) or $17 \times 9.5 - 2.8 \times 9.5$ (= 161.5 – 26.6 = 134.9) M1 for $\pi \times (3.8 \div 2)^2$ (= 11.33 – 11.35) M1 (dep on M1) for '134.9' – 2 × '11.34' A1 for 112 - 113 C1(dep on at least M1) for 'He needs 5 boxes' ft from candidate's calculation rounded up to the next integer

Pearson Edexcel - Wednesday 13 June 2012 - Paper 2 (Calculator) Higher Tier

70.

6			Farm shop	4	M1 for 12.5 ÷ 2.5 (=5) M1 for '5'×1.83 or '5' × 183 A1 for (£)9.15 or 915(p) C1 (dep on at least M1) for decision ft working shown **OR** M1 for 12.5 ÷ 2.5 (=5) M1 for 9 ÷ '5' or 900 ÷ '5' A1 for (£)1.8(0) or 180(p) C1 (dep on at least M1) for decision ft working shown **OR** M1 for 9 ÷ 12.5 (=0.72) **or** 1.83 ÷ 2.5 (=0.732) M1 for 9 ÷ 12.5 (=0.72) **and** 1.83 ÷ 2.5 (=0.732) A1 for 72(p) **and** 73.(2)(p) or (£)0.72 **and** (£)0.73(2) C1 (dep on at least M1) for decision ft working shown **OR** M1 for 12.5 ÷ 9 (= 1.388...) M1 for 2.5 ÷ 1.83 (= 1.366...) A1 for 1.38.... **and** 1.36... truncated or rounded C1 (dep on at least M1) for decision ft working shown

Pearson Edexcel - Wednesday 13 June 2012 - Paper 2 (Calculator) Higher Tier

71.

<table>
<tr>
<td>*15</td>
<td></td>
<td>180 × 365 =65700
65700 ÷1000 =65.7
65.7 × 91.22 =5993.154
5993.154÷100 + 28.20 =88.13...

<table>
<tr><th>D</th><th>U</th><th>C</th><th>T</th></tr>
<tr><td>366</td><td>65880</td><td>6010</td><td>88.30</td></tr>
<tr><td>365</td><td>65700</td><td>5993</td><td>88.13</td></tr>
<tr><td></td><td>65000</td><td>5929</td><td>87.49</td></tr>
<tr><td></td><td>66000</td><td>6020</td><td>88.40</td></tr>
<tr><td>364</td><td>65520</td><td>5976</td><td>87.96</td></tr>
<tr><td>360</td><td>64800</td><td>5911</td><td>87.31</td></tr>
<tr><td>~~336~~</td><td>~~60480~~</td><td>5517</td><td>83.37</td></tr>
</table>
</td>
<td>Decision (Should have a water meter installed)</td>
<td>5</td>
<td>Per year
M1 for 180 × '365' (= 65700)
M1 for '65700' ÷ 1000 (= 65.7 or 65 or 66)
M1 for '65.7' × 91.22 (= 5993...)
A1 for answer in range (£)87 to (£)89
C1 (dep on at least M1) for conclusion following from working seen

OR (per day)
M1 for 107 ÷ '365' (= 0.293…)
M1 for 180 ÷ 1000 × 91.22 (= 16.4196)
M1 for 28.2 ÷ '365' + '0.164196' (units must be consistent)
A1 for 29 – 30(p) and 24 – 24.3(p) oe
C1 (dep on at least M1) for conclusion following from working seen

OR
M1 for (107 – 28.20) ÷ 0.9122 (= 86.384..)
M1 for '86.384..'× 1000 (= 86384.5…)
M1 for '365' × 180 (= 65700)
A1 for 65700 and 86384.5...
C1 (dep on at least M1) for conclusion following from working seen

NB : Allow 365 or 366 or 52×7 (=364) or 12 × 30 (=360) or 365¼ for number of days</td>
</tr>
</table>

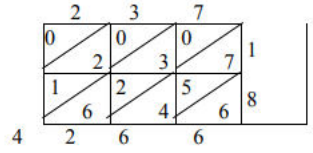
Pearson Edexcel - Wednesday 13 June 2012 - Paper 2 (Calculator) Higher Tier

72.

<table>
<tr>
<td>23</td>
<td>(a)(i)</td>
<td>Explanation : Each member of the population has an equal chance of selection</td>
<td>Each member of the population has an equal chance of selection</td>
<td>2</td>
<td>B1 for explanation</td>
</tr>
<tr>
<td></td>
<td>(ii)</td>
<td>Description : Eg. number each student and use random select on a calculator</td>
<td>Valid method</td>
<td></td>
<td>B1 for an acceptable description</td>
</tr>
<tr>
<td></td>
<td>(b)</td>
<td>239+257+248+190+206=1140
$\frac{239}{1140} \times 100$</td>
<td>21</td>
<td>2</td>
<td>M1 for $\frac{239}{'1140'} \times 100$ oe or 20.96…
A1 cao</td>
</tr>
</table>

Pearson Edexcel - Friday 2 March 2012 - Paper 3 (Non-Calculator) Higher Tier

73.

3	(a)	237 ×18 1896 2370 4266 18 ×237 126 540 3600 4266 **OR**  **OR** 200 30 7 2000 300 70 10 1600 240 56 8 3600 540 126 18	42.66	3	M1 for a complete method with relative place value correct. Condone 1 multiplication error, addition not necessary. M1 (dep) for addition of all the appropriate elements of the calculation A1 for 42.66(p) **OR** M1 for a complete grid with not more than 1 multiplication error, addition not necessary. M1 (dep) for addition of all the appropriate elements of the calculation A1 for 42.66(p) **OR** M1 for sight of a complete partitioning method, condone 1 multiplication error, addition not necessary. M1 (dep) for addition of the all the appropriate elements of the calculation A1 cao **OR** M2 for repeated addition, exactly 18 seen A1 for 42.66(p)
	(b)	10% of 85 = 85 ÷10 85 – 8.5 Or 90% of 85 = (85÷10)×9	£76.50	3	M1 for $\frac{10}{100}\times 85$ **or** 85 ÷10 (=8.5) oe M1 (dep) for 85 – '8.5' A1 £76.50(p) or £76.5(p) **OR** M2 for $\frac{90}{100}\times 85$ **or** (85÷10)×9 oe A1 £76.50(p) or £76.5(p)

Pearson Edexcel - Monday 5 March 2012 - Paper 4 (Calculator) Higher Tier

74.

4		3 × 65 = 195 195 × $\frac{20}{100}$ = 39 195 + 39 =	234	4	M1 for 3 × 65 (= 195) M1 for "195" × $\frac{20}{100}$ oe or 39 M1 (dep M2) for adding"195" and "39" A1 cao **OR** M1 for 65 × $\frac{20}{100}$ oe or 13 M1 (dep M1) for adding 65 and "13" M1 (indep) for (65 + "13") × 3 A1 cao **OR** M2 for 78 seen M1 for 78 × 3 A1 cao (SC B3 for 208 as answer from 195 + 13 SC B2 for 312 as answer or 195 + 13 SC B1 for 52 from 20% of 260)

Pearson Edexcel - Monday 6 June 2011 - Paper 3 (Non-Calculator) Higher Tier

75.

1		15 ÷ 10 80 × 1.5 60 × 1.5 30 × 1.5 36 × 1.5	120, 90, 45, 54	3	M2 for any one of 80 + 40 or 60 + 30 or 30 + 15 or 36 + 18 or 120 or 90 or 45 or 54 seen A1 cao OR M1 for 15 ÷ 10 or 3 ÷ 2 or sight of 1.5 M1(dep) for 80 × '1.5' or 60 × '1.5' or 30 × '1.5' or 36 × '1.5' A1 cao OR M1 for 80 ÷ 10 or 60 ÷ 10 or 30 ÷ 10 or 36 ÷ 10 or 8 or 6 or 3 or 3.6 M1(dep) for '8' × 15 or '6' × 15 or '3' × 15 or '3.6' × 15 A1 cao OR M1 for 80 ÷ 2 or 60 ÷ 2 or 30 ÷ 2 or 36 ÷ 2 or 40 or 30 or 15 or 18 M1 (dep) for '40' × 3 or '30' × 3 or '15' × 3 or '18' × 3 A1 cao

Pearson Edexcel - Monday 6 June 2011 - Paper 3 (Non-Calculator) Higher Tier

76.

6		360 ÷ 30	12	2	M1 for 360 ÷ 30 A1 cao

Pearson Edexcel - Friday 10 June 2011 - Paper 4 (Calculator) Higher Tier

77.

16		(100% – 10%)×Normal Price=£4.86 Normal Price = £4.86 ÷ 0.9	£5.40	3	M1for '4.86 is 90%' or (100% – 10%) × Normal Price = 4.86 or 4.86 ÷ 90 M1 for 4.86 ÷ 0.9 or 4.86 × 10 ÷ 9 oe A1 £5.40 (accept 5.4) OR M1 10% = £0.54 or £4.86 ÷ 9 M1 (dep) £4.86 + '£0.54' A1 £5.40 (accept 5.4)

Pearson Edexcel - Friday 10 June 2011 - Paper 4 (Calculator) Higher Tier

78.

22		700 ÷ (750 + 700 + 900) × 50 = 700 ÷ 2350 × 50 = 14.8936…	15	2	M1 for 700 ÷ (750 + 700 + 900) × 50 or 14.8….or 14.9 seen A1 cao

Pearson Edexcel - Tuesday 9 November 2010 - Paper 3 (Non-Calculator) Higher Tier

79.

7	175 x 37 1225 5250 6475 1 7 5 0 0 2 1 3 3 1 5 6 0 4 3 7 7 9 5 4 7 5 100 70 5 3000 2100 150 30 700 490 35 7 3000 + 2100 +150 + 700 + 490 +35 = 6475	64.75	3	M1 for a complete method with relative place value correct, condone 1 multiplication error, addition not necessary M1(dep) intent to add A1 cao **or** M1 for a completed grid with not more than 1 multiplication error, addition not necessary M1(dep) intent to add A1 cao **or** M1 for sight of **any** complete partitioning method, condone 1 multiplication error, final addition not necessary M1(dep) intent to add A1 cao NB : In all methods ignore placement of decimal point until final answer.

Pearson Edexcel - Tuesday 9 November 2010 - Paper 3 (Non-Calculator) Higher Tier

80.

11	600 + 300 + 150 6000 + 1050 7050 – 3000 4050 ÷ 10	405	6	M1 for 600 + 300 + 150 oe **or** 6000×0.175 oe (**NB** must be VAT of 6000) M1 for 6000 + "1050" A1 for 7050 cao M1 for "7050" – 3000 M1 for dividing by 10 A1 for 405 cao

Pearson Edexcel - Tuesday 9 November 2010 - Paper 3 (Non-Calculator) Higher Tier

81.

25	$\frac{180}{1000} \times 50$	9	2	M1 for $\frac{180}{'1000'} \times 50$ oe A1 cao

Pearson Edexcel - Friday 12 November 2010 - Paper 4 (Calculator) Higher Tier

82.

4	(a)	3×100	300	2	M1 for 3×100 or $100 \div 6 \times 18$ oe A1 cao
	(b)	$2 \div ½ \times 6$	24	2	M1 for $2 \div ½ \times 6$ oe A1 cao

Pearson Edexcel - Friday 12 November 2010 - Paper 4 (Calculator) Higher Tier

83.

18	$19.5 \times 1000 \div 210$ $= 19500 \div 210 = 92.8(5714\ldots)$ or $92 \times 210 = 19320 = 19.32\ l$ $93 \times 210 = 19530 = 19.53\ l$ or $19500 \div 92 = 211.95$ $19500 \div 93 = 209.67$	Explanation	3	M1 for converting between m*l* and *l* correctly or for 0.21 or 19500 seen M1 for "19500" ÷ "210" or 92 × "210" or 93 × "210" or "19500" ÷ 92 A1 for a worded explanation with correct calculations

Pearson Edexcel - Friday 11 June 2010 - Paper 4 (Calculator) Higher Tier

84.

1	120×1.5 8×1.5 420×1.5 180×1.5	180 12 630 270	3	M1 for $\times 6 \div 4$ or $\frac{6}{4}$ or $\div 4 \times 6$ oe (120+60) or 1.5 seen or sight of any one of the four correct answers A1 for 2 or more correct answers A1 for 4 correct answers

Pearson Edexcel - Tuesday 10 November 2009 - Paper 4 (Calculator) Higher Tier

85.

10		$360 + \frac{17.5}{100} \times 360$	423	3	M1 for $\frac{17.5}{100} \times 360$ oe or $10\% + 5\% + 2.5\%$ oe (condone 1 calculation error) or 63 seen or 36, 18 and 9 seen M1 (dep) for 360 + '63' A1 for 423 OR M2 for 1.175×360 oe A1 for 423

Pearson Edexcel - Tuesday 10 November 2009 - Paper 4 (Calculator) Higher Tier

86.

21		$132.88 \div 88 \times 100$	151	3	M1 for recognising that 88% is equivalent to 132.88 M1 for $132.88 \div 88 \times 100$ oe A1 cao

Pearson Edexcel - Tuesday 10 November 2009 - Paper 4 (Calculator) Higher Tier

87.

24		$85 \div 382 \times 50$	11	2	M1 for $85 \div 382 \times 50$ oe or 11.1(…) seen A1 cao

OCR GSCE – Tuesday 3 November 2020 – Paper 4 (Calculator) Higher Tier

88.

10			142.2[0] with correct working	**6**	**M1** for 36^2 or 1296 **M1** for $k \times \pi \times 18^2$ oe where k = ½, 1, 1½ or 3 AND **M1** for *their* area × 30 **M1** for *their* mass ÷ 1000 and ÷ 10 or counting up in 10 000s to their mass AND **M1** for *their* 9 × 15.8 If **0, 1 or 2** scored instead award **SC3** for answer of 142.2[0] with insufficient working If **0 or 1** scored instead award **SC2** for 2822 to 2823.02 If **0** scored award **SC1 for** 1526 to 1527.02, 1017 to 1018.008, 508 to 509.004, 3051 to 3054.024, 162π, 324π, 486π rot to at least nearest integer	Correct working requires **M1** AND **M1** AND **M1** **M2** implied by 2822 to 2823.02 or **M1** implied by 1526 to 1527.02, 1017 to 1018.008, 508 to 509.004, 3051 to 3054.024, 162π, 324π, 486π rot to at least nearest integer *their* area cannot be 36 and **M1** implied by 84660 to 84 690.6 or 84.66 to 84.7 *their* mass is attempt at (rectangle and circle(s)) × 30, **M1** implied by 8.46 to 8.47 *their* 9 **dep.** on fourth **M1** scored **with a rounding up to next integer**

OCR GSCE – Monday 9 November 2020 – Paper 6 (Calculator) Higher Tier

89.

4	**(a)**		e.g. $\sqrt{\left(\frac{4\times400}{0.5\times200}\right)^3} = \sqrt{16^3} = 64$	**3**	**B2** for 4, 400, 0.5 and 200 or **B1** for at least two of 4, 400, 0.5 and 200	For full marks, at least one of these intermediate steps leading to 64 must be seen $\sqrt{16^3}$ or 4^3 or $\sqrt{4096}$
	(b)		38.7 to 38.9	**4**	**B2** for 46.1 to 46.11 or 17.89 to 17.9 or **B1** for 12.8 to 12.9 or 3.57 to 3.6[0] or 2125 to 2126 and **M1** for (64 – *their* 46.1 to 46.11) ÷ *their* 46.1 to 46.11 [× 100] oe	Accept 39 with correct working

OCR GSCE – Monday 11 November 2019 – Paper 6 (Calculator) Higher Tier

90.

10	**a**		4 + 11 + 8 = 23 seen	**1**		Accept written as a sum in a column
	b		e.g. First column: $n + (n + 7) + (n + 6) = 3n + 13$ Second column: $(n + 1) + (n + 8) + (n + 5) = 3n + 14$ $(3n + 14) - (3n + 13) = 1$	**5**	**B2** for consistent algebraic terms for at least first two columns of the grid or **B1** for at least 3 algebraic terms for consecutive numbers seen AND **M1** for algebraic sum of first or second column shown **M1** for algebraic sum of first **and** second columns shown and correctly simplified **A1** for sum of second column – sum of first column = 1 calculated or explained from correct working or **M1** for difference of one pair of algebraic terms from first and second column shown **M1** for differences of two further pairs of algebraic terms from first and second column, with all three pairs correctly simplified **A1** for each difference found as +1 or -1 oe and summed/explained to a difference of +1. Correct algebra and reasoning throughout If **0** scored, allow **SC1** for a correct numerical or descriptive example using either method and stating an overall difference of 1	e.g. n, $(n + 7)$, $(n + 6)$ and $(n + 1)$, $(n + 8)$, $(n + 5)$ e.g. n, $(n + 1)$, $(n + 2)$ e.g. $n + (n + 7) + (n + 6)$ or in column e.g. $n + (n + 7) + (n + 6) = 3n + 13$ **A1** for e.g. $3n + 14$ and $3n + 13$ and "second column is 1 more than the first" but **A0** for e.g. $3n + 14$ and $3n + 13$ and "difference of 1" or for $(3n + 14) - 3n + 13 = 1$ e.g. "the difference between $n + 1$ and n is 1" e.g. "$n + 1$ is 1 more than n" Condone poor use of brackets for both **M** marks

OCR GSCE – Thursday 6 June 2019 – Paper 5 (Non-Calculator) Higher Tier

91.

3	**(a)**		40	**3**	**M2** for $\frac{1.68 - 1.20}{1.20}$ [× 100] **oe** Or **M1** for $\frac{1.68}{1.20}$ **oe** or for 1.68 – 1.20 **oe**	eg $\frac{48}{1.20}$ or $\frac{48}{120}$ or 0.4 For M1 accept 168 – 120 oe eg 48 M1 implied by 1.4 or 140
	(b)		450	**3**	**M2** for 360 ÷ 0.8 **oe** or **B1** for 0.8[0] **oe** seen or for 360 associated with 80% **isw**	For B1 0.8 oe seen allow fraction but not just for 80%

OCR GSCE – Tuesday 11 June 2019 – Paper 6 (Calculator) Higher Tier

92.

1	**a**		5400 or 5401 or 5402 final answer	**2**	**M1** for figs 35 ÷ figs 648, soi by figs 540[1…] or for 0.000 064 8 seen	
	b		Any reference to average/inexact weight oe [in packet weight or weight of a grain] or recognising that the number of grains of salt must be integer oe	**1**		Condone any mention of • average for variation and/or • size for weight Mark the best part if no contradiction or wrong statement See appendix

OCR GSCE – Tuesday 11 June 2019 – Paper 6 (Calculator) Higher Tier

93.

6			108 nfww	**4**	**B3** for $\frac{108}{300}$ OR **M3** for $(300 - \frac{23}{50} \times 300) \div 3 \times 2$ oe or **M2** for $300 - \frac{23}{50} \times 300$ soi 162 or **M1** for $\frac{23}{50} \times 300$ oe soi 138 Alternative method **M1** for [p(white or red) =] $1 - \frac{23}{50}$ soi $\frac{27}{50}$ **M1** for *their* $\frac{27}{[50]} \div 3 \times 2$ soi $\frac{18}{[50]}$ **M1** for *their* 18×6 or *their* $\frac{18}{50} \times 300$	May use percentages or decimals for M marks May use 23 : 18 : 9 for M2

OCR GSCE – Thursday 8 November 2018 – Paper 5 (Non-Calculator) Higher Tier

94.

5	**(a)**		12	**3**	**M2** for $\frac{57.8 - 54.2}{0.3}$ **oe** or **M1** for 57.8 – 54.2 or 3.6 **seen** or for repeated subtraction of 0.3 from 57.8 or for repeated addition of 0.3 to 54.2	Minimum of 2 repeats Minimum of 2 repeats
5	**(b)**		Answer would be bigger **oe**	**1**		e.g. It would take more days It will take longer

OCR GSCE – Monday 12 November 2018 – Paper 6 (Calculator) Higher Tier

95.

16			There could be £301 e.g. because 2635 ÷ 8.745 = 301[.3…]	**3**	**M2** for a calculation of (2625 to 2635) ÷ (8.745 to 8.755) oe correctly evaluated to an answer of 301(….) or for a calculation of (2632.245 to 2635) ÷ 301 oe correctly evaluated to an answer of 8.745 to 8.755 or for a calculation of 301 × (8.745 to 8.7541528…) oe correctly evaluated to an answer of 2625 to 2635 or **M1** for any further calculation of (2625 to 2635) ÷ (8.745 to 8.755) or (2625 to 2635) ÷ 301 or 301 × (8.745 to 8.755) but not 2625 ÷ 8.755 or 2630 ÷ 8.75 or **B1** for 2635, 2.635, 8.745 or 8745 seen	For full marks, their conclusion must follow from a relevant calculation which shows that 301 is a possible answer (either use of 301 and two weights in range, or an answer of more than 301 rounded **down**, and **not** an answer of less than 301 rounded **up**) Calculations may be done in grams as shown, or converted to kg. Common calculations for at least **M2** include: 2635 ÷ 8.75 = 301.1(…) 2635 ÷ 8.745 = 301.3(…) Common calculations scoring only **M1** include: 2625 ÷ 8.75 (= 300) 2630 ÷ 8.745 = 300.7(…)

OCR GSCE – Tuesday 12 June 2018 – Paper 6 (Calculator) Higher Tier

96.

13	**(a)**		288π or 904.3 to 905	**2**	**M1** for $\frac{4}{3}$ (×) π (×) 6^3	Accept 904 if **M1** scored

	(b)		20.0[9...] to 20.1[...] or $\frac{32}{5}\pi$ oe nfww	**5**	**M1** for [hemisphere=] 0.5 × *their* (a) soi or 0.5 × $\frac{4}{3}$ (×) π (×) 6^3 or [pyramid=] $\frac{1}{3}\times 15\times 15$ [×'*h*'] soi **M1** for [hemisphere=] 0.5 × *their* (a) soi or 0.5 × $\frac{4}{3}$ (×) π (×) 6^3 and [pyramid=] $\frac{1}{3}\times 15\times 15$ [×'*h*'] soi OR 0.3 × *their* pyramid [×'*h*'] or $\frac{\textit{their}\text{ hemisphere}}{0.3}$ oe **M1** for hemisphere soi and 0.3 × *their* pyramid [×'*h*'] OR $\frac{\textit{their}\text{ hemisphere}}{0.3}$ oe and pyramid [×'*h*'] soi **M1** for $\frac{\textit{their}\text{ hemisphere}}{0.3} \div$ *their* pyramid oe If **0** scored, allow **SC3** for $\frac{64}{5}\pi$ or 40.[1..] to 40.2[…] as final answer	Accept answer 20 after full working. No requirement at any stage for a formal equation. Values below provided as a guide to method being used, but mark method not accuracy: ie hemisphere (144π or 452.(..)) or pyramid (75[*h*]) ie hemisphere (144π or 452.(..)) and pyramid (75[*h*]) OR 30% of pyramid (22.5[*h*]) or "reverse %" using hemisphere (480 π or 1507(..)) ie hemisphere (144π or 452.(..)) and 30% of pyramid (22.5[*h*]) OR "reverse %" using hemisphere (480 π or 1507(..)) and pyramid (75[*h*]). To receive **M1M1M1** they should have both parts of the "ands" correct If correct, at this stage, it should be (480 π or 1507(..)) ÷ 75 oe 1507(..)) ÷ 225 is likely to score **M1M1M0M1**

OCR GSCE – Tuesday 6 November 2017 – Paper 5 (Non - Calculator) Higher Tier

97.

4	**(a)**		$(x - 43)(x + 43)$ final answer	**1**		Condone omission of final bracket
	(b)		1400	**2**	**M1** for $(57 + 43)(57 - 43)$ FT *their* quadratic factors in (a) or better or **B1** for 3249 or 1849 **seen**	M1 for FT factors $(x + 43)(x + 43)$ or $(x - 43)(x - 43)$ only

OCR GSCE – Tuesday 13 June 2017 – Paper 6 (Calculator) Higher Tier

98.

11			No, with correct calculation leading to 23.77 to 23.8 identified or with 7.32 compared with 7.25 oe or 302 compared with 305 oe	**4** **1 AO1.3b** **2 AO3.1d** **1 AO3.3**	**B1** for 7250 or 7.25 seen **B1** for 305 or 0.305 seen **M1** for *their* 7.25 ÷ *their* 0.305 with consistent units and at least one attempted bound or for *their* 0.305 × 24 oe or *their* 7250 ÷ 24 oe	Ignore upper bound Ignore lower bound *Their* 7.25 in range 7 to 8, *their* 0.305 in range 0.29 to 0.31 or equivs. Ignore other divisions or products **M0** for 7500 ÷ 300 or 7.5 ÷ 0.3

OCR GSCE – Tuesday 13 June 2017 – Paper 6 (Calculator) Higher Tier

99.

18	**a**		9.8[1…] nfww	**4** **1 AO1.3b** **2 AO3.1d** **1 AO3.3**	**M3** for $\sqrt{46^2 + 46^2 + 55^2}$ or 85.18 to 85.2 or $\sqrt{7257}$ OR **M2** for $46^2 + 46^2 + 55^2$ or 7257 or $\sqrt{46^2 + 46^2}$ or $\sqrt{4232}$ or 65.05 to 65.1 or $\sqrt{46^2 + 55^2}$ or $\sqrt{5141}$ or 71.7[…] OR **M1** for $46^2 + 46^2$ or 4232 or $46^2 + 55^2$ or 5141	Accept answers rounding to 9.8 if correct working seen Condone for full marks minor inaccuracies from rounding, such as $\sqrt{7256}$ seen May be done in steps
	b		40.2 nfww	**3** **1 AO1.3a** **2 AO3.1c**	**M2** for $\sin[\ldots] = \frac{55}{\textit{their}\ 85.18\text{ to }85.2}$ or $\tan[\ldots] = \frac{55}{\textit{their}\ \sqrt{46^2 + 46^2}}$ or $\cos[\ldots] = \frac{\textit{their}\ \sqrt{46^2 + 46^2}}{\textit{their}\ 85.18\text{ to }85.2}$ OR **M1** for indication of required angle	Accept 40° and answers rounding to 40.2 if correct working seen **0** for $\tan[\ldots] = \frac{55}{46}$ **M2** for cosine rule with cos as subject eg diagram showing angle

OCR GSCE – Sample Papers – Paper 4 (Calculator) Higher Tier

100.

9	**(a)**		10 metres	**3** 1 AO1.3a 2 AO3.1c	**M1** for correct ratio $\frac{\text{height}}{20} = \frac{30}{60}$ **oe** **M1** rearrange Or **M1** for scale factor 0.5 **M1** for 20×0.5	
	(b)		2 valid reasons, e.g. She would have to be very far from the building. The estimate is likely to be inaccurate due to the scale factors at the distances involved.	**2** 2 AO3.4a		

AQA GSCE – Thursday 8 November 2018 – Paper 2 (Calculator) Higher Tier

101.

13	Evaluates method	B1	eg1 his method does not work because 1.2 m does not divide exactly by 50 cm eg2 there are not a whole number of 50 cm in 1.2 m eg3 50 cm will not fit in 0.2 m eg4 $1.2 \div 0.5 = 2.4$ which is not a whole number eg5 $120 \div 50 = 2.4$ and cannot have 2.4 boxes eg6 can only fit 2 layers of boxes
	Evaluates claim	B1	eg1 he can only fit 40 eg2 he will not fit (as many as) 48
	Additional Guidance		
	Volume divided volume doesn't always work		(1st) B0
	He is wrong as he can put 42 boxes		(2nd) B0
	Only 2 layers will fit so he can't fit 48 boxes		B1B1
	Can't have 0.4 of a box so he can only fit 45 boxes		B1B0
	$5 \times 4 \times 2 = 40$		B0B1

AQA GSCE – Thursday 7 June 2018 – Paper 2 (Calculator) Higher Tier

102.

	Alternative method 1		
6	Any one of 60 000 ÷ 420 000 or 0.14… or 14.(…)% or $\frac{1}{7}$ or 480 000 ÷ 420 000 or 1.14… or 114.(…)% or $\frac{8}{7}$ or 420 000 ÷ 60 000 or 7 or 420 000 ÷ 480 000 or 0.875 or 87.5% or $\frac{7}{8}$ or 60 000 ÷ 540 000 or 0.11… or 11.(…)% or $\frac{1}{9}$ or 540 000 ÷ 60 000 or 9	M1	oe eg 60 000 : 420 000 or 1 : 7 or 480 000 : 420 000 or 8 : 7
	Any one of 60 000 ÷ 480 000 or 0.125 or 12.5% or $\frac{1}{8}$ or 540 000 ÷ 480 000 or 1.125 or 112.5% or $\frac{9}{8}$ or 480 000 ÷ 60 000 or 8 or 480 000 ÷ 540 000 or 0.88… or 0.89 or 88.(…)% or 89% or $\frac{8}{9}$	M1	must be a matching pair (could be different forms) to award M2 (see A1 for list of matching pairs) oe eg 60 000 : 480 000 or 1 : 8 or 540 000 : 480 000 or 9 : 8

Mark scheme continues on the next page

6 cont	$\frac{1}{7}$ and $\frac{1}{8}$ and No or $\frac{8}{7}$ and $\frac{9}{8}$ and No or 0.14… and 0.125 and No or 14.(…)% and 12.5% and No or 1.14… and 1.125 and No or 114.(…)% and 112.5% and No or 7 and 8 and No or $\frac{7}{8}$ and $\frac{8}{9}$ and No or $\frac{1}{9}$ and $\frac{1}{8}$ and No or 9 and 8 and No or 0.11… and 0.125 and No or 11.(…)% and 12.5% and No or 0.875 and 0.88… or 0.89 and No or 87.5% and 88.(…)% or 89% and No	A1	oe eg 1 : 7 and 1 : 8 and No

Mark scheme continues on the next page

6 cont	**Alternative method 2**		
	No and any one of $\frac{60\,000}{420\,000} \times 480\,000$ and [67200, 68640] or $\frac{60\,000}{480\,000} \times 540\,000$ and 67 500 or $\frac{60\,000}{480\,000} \times 420\,000$ and 52 500 or $\frac{60\,000}{540\,000} \times 480\,000$ and [52 800, 53 334] or $\frac{420\,000}{480\,000} \times 540\,000$ and 472 500 or $\frac{480\,000}{420\,000} \times 480\,000$ and [547 200, 548 640] or $\frac{480\,000}{540\,000} \times 480\,000$ and [422 400, 427 200] or $\frac{540\,000}{480\,000} \times 420\,000$ and 472 500	B3	oe B2 any one of the calculations B1 any one of the fractions oe for equivalent fractions, decimals and percentages see Alternative method 1

Additional guidance continues on the next page

	Additional Guidance	
6 cont	In Alt 1, for M2 the matching pair do not have to be in comparable form eg 14.3% and $\frac{1}{8}$ and No	M1M1A0
	For comparable fractions, they must be in their lowest terms or have the same numerators or the same denominators for the A1 eg Alt 1 $\frac{60\,000}{420\,000}$ and $\frac{60\,000}{480\,000}$ and No	M1M1A1
	For comparable ratios, they must be in their lowest terms or have the same LH sides or the same RH sides for the A1 eg Alt 1 60 000 : 420 000 and 60 000 : 480 000 and No	M1M1A1
	If working with percentages, condone absence of % symbol eg Alt 1 14 and 12.5 and No	M1M1A1
	Both are increases of 60 000 and it is then over different amounts so cannot be the same percentage	M0M0A0

AQA GSCE – Sample Paper 3 (Calculator) Higher Tier

103.

21	**Alternative method 1**		
	27.5 or 26.5 or 20.5 or 19.5 or 15.5 or 14.5 or 14.35 or 14.25 or 19.25 or 19.15 or 1.55 or 1.45	B1	Any one seen
	a bound of 27 ÷ a bound of 1.5	M1	Must see the calculation written down $26.5 \leqslant$ a bound of $27 \leqslant 27.5$ but not 27 $1.45 \leqslant$ a bound of $1.5 \leqslant 1.55$ but not 1.5 eg 1 27.49 ÷ 1.45 eg 2 26.45 ÷ 1.54999
	26.5 ÷ 1.55	M1	Must see the calculation written down 26.5 ÷ 1.55 scores B1 M1 M1
	[17.0, 17.1]	A1	Must see method
	Alternative method 2		
	27.5 or 26.5 or 20.5 or 19.5 or 15.5 or 14.5 or 14.35 or 14.25 or 19.25 or 19.15 or 1.55 or 1.45	B1	Any one seen
	17 × a bound of 1.5	M1	Must see the calculation written down $1.45 \leqslant$ a bound of $1.5 \leqslant 1.55$ but not 1.5 eg 1 17 × 1.45 eg 2 17 × 1.54999
	17 × 1.55	M1	Must see the calculation written down 17 × 1.55 scores B1 M1 M1
	26.35 and 26.5	A1	Must see method

Alternative method 3 on next page

21	**Alternative method 3**		
	27.5 or 26.5 or 20.5 or 19.5 or 15.5 or 14.5 or 14.35 or 14.25 or 19.25 or 19.15 or 1.55 or 1.45	B1	Any one seen
	a bound of 27 ÷ 17	M1	Must see the calculation written down 26.5 ⩽ a bound of 27 ⩽ 27.5 but not 27 eg 1 27.49 ÷ 17 eg 2 26.45 ÷ 17
	26.5 ÷ 17	M1	Must see the calculation written down 26.5 ÷ 17 scores B1 M1 M1
	[1.558, 1.559] and 1.55	A1	