JustMaths

BUMPER

"BETWEEN PAPERS 2 AND 3" PRACTICE PAPER (Q28 TO Q54)

FOUNDATION TIER (SUMMER 2017)

EXAMINERS REPORTS & MARKSCHEME

NOT A "BEST" GUESS PAPER.

NEITHER IS IT A "PREDICTION" ... ONLY THE EXAMINERS KNOW WHAT IS GOING TO COME UP! FACT!
YOU ALSO NEED TO REMEMBER THAT JUST BECAUSE A TOPIC CAME UP ON PAPER 1 OR PAPER 2 IT MAY STILL COME UP ON PAPER 3

WE KNOW HOW IMPORTANT IT IS TO PRACTISE, PRACTISE, PRACTISE .... SO WE'VE COLLATED A LOAD OF QUESTIONS THAT WEREN'T EXAMINED IN THE PEARSON/EDEXCEL NEW 9-1 GCSE MATHS PAPER 1 AND PAPER 2 BUT WE CANNOT GUARANTEE HOW A TOPIC WILL BE EXAMINED IN THE FINAL PAPER
ENJOY!

MEL & SEAGER

NB: SOME OF THESE QUESTIONS MAY HAVE ALSO BEEN INCLUDED IN THE PAPERS USED BETWEEN PAPERS 1 AND 2 ... THE PRACTISE IS GOOD FOR YOU!

EXAMINERS COMMENTS

Q28. No Examiner's Report available for this question

Q29. This question was well attempted by most candidates with many scoring full marks. The most common error was 32 where candidates did 2 × 16 rather than 2.5 × 16. Other candidates calculated the amount of biscuits that could be made from each ingredient then either chose the wrong answer, made a computational error or added all their answers together. A few candidates tried to calculate the ingredients needed for one biscuit but, for almost all, the calculations proved too difficult. Computational errors were common on this question.

Q30. Part (a) was done well. The vast majority of candidates were able to work out the amount of milk needed to make 20 cherry scones. The most popular approach here was to add the quantities of milk 160 + 160 + 80 rather than to use proportions, eg $\frac{20}{8} \times 160$. A common incorrect answer here was 480 from finding 3 times the quantity of milk. Basic arithmetic proved an obstacle for some candidates. It was not uncommon to see calculations such as "160 + 160 + 80 = 420", "160 × 2 = 360" and "160 + 160 = 220".

In part (b), most candidates were able to find the greatest number of cherry scones that could be made with the given ingredients, but some omitted to show both the calculations needed to confirm their decision, usually the calculation for sugar was omitted. Although not penalised here, candidates should be reminded to identify their calculations with the particular aspects of the question they are considering, ie identifying the calculations for sugar with "sugar" and the calculations for flour with "flour".

Q31. Most candidates understood what they needed to do and marks were most frequently lost due to a lack of care and attention to detail. Monetary answers had to be shown with the correct currency units, and written correctly (eg £26.5 is not enough). There were also errors in undertaking subtraction, even neglecting to do it after a currency conversion.

Q32. The exchange rate was used correctly in the majority of cases although 96 × 1.20 was not uncommon. In addition many candidates tried to convert €96 by splitting the exchange rate of 1.20, often finding 0.2 of 96 then subtracting from 1 (or adding to 1).

Most candidates were able to gain some credit in part (b), many with full marks. Some executed correct calculations but failed to actually answer the question with an explanation of the city where the handbag could be bought more cheaply. On some occasions, units were omitted; 54 or 63 alone without units were unacceptable forms of the costs. For multiple attempts, the values being used needed to be clearly identified to gain credit.

Q33. Many correct answers to this question. The only common error in completing the table was use of 15 instead of −15. Plotting was good, though an opportunity to correct errors in the table were lost due to the failure to anticipate the correct shape of the graph. There were many errors in joining the points, with many using straight line segments or curves which missed joining the points.

Q34. The only x value candidates had any difficulty with was $x = -2$, which usually led to an incorrect 0 for plotting. Though this was clearly wrong on the graph candidates still plotted this incorrect value.

A common error in part (b) was to leave the points unjoined, or to join them with straight line segments.

In part (c) few candidates realised the significance of the graph for finding the solutions, instead most preferred to solve them by either factorising or by using the formula method.

Q35. The most common method used that lead to the correct answer was to enlarge the triangle and then find the area of the enlarged triangle. It was, however, disappointing to see many candidates successfully enlarge the triangle and then fail to find its area. Those candidates who started with the area of the given triangle invariably divided by 2 rather than $(2)^2$ to find the area of the enlarged triangle. It was very rare indeed to see the area scale factor being used. Equally disappointing was the number of candidates who tried and failed to find the correct area of the given triangle. A significant number of students who drew the enlarged triangle did not understand that a scale factor of ½ would result in a smaller triangle.

Q36. The most popular approach was to draw an appropriate triangle and then divide the relevant lengths. Many candidates were successful with this method, some did fail to get the final answer as they divided incorrectly, often giving the incorrect answer of 2 instead of 0.5. Another approach was to use two sets of coordinates and the formula, however more arithmetic errors crept into this method. Some candidates did find the gradient accurately but then gave the equation of the line as their answer, never isolating the gradient. This was seen as an embedded answer. Centres should encourage candidates to check they have clearly answered the question asked in the examination.

Q37. Also a good discriminator, there were some completely correct solutions to this geometry question and where a solution was not complete, it was often possible for examiners to award partial credit to students who had made some progress.

The most common error made was in the calculation of the size of angle *PTR*. Some students worked out the size of the angle *QRD* then stated that angle *PTR* was the same size. This was without foundation as there was no indication that the line *PT* was parallel to the line *QR*.

Q38. No Examiner's Report available for this question

Q39. This question discriminated well between the more able candidates taking this paper. More than 40% of candidates were able to work out the size of at least one of the missing angles (candidates were given credit for these written clearly on the diagram). About a half of these candidates made further progress and worked out the size of several angles but only the more able candidates were able to get as far as finding the size of angle *x*. Very few candidates gave correct reasons in an acceptable form and so candidates could rarely be awarded all four marks for their response. In particular, candidates did not accurately articulate properties involving angles and parallel lines. Weak candidates often added the sizes of the angles given on the diagram and then found the difference between their answer and 180° or 360°.

Q40. A surprising number of candidates (9%) scored one mark in this question, either for correctly calculating the missing angles in the isosceles triangle *ABC* or for finding the alternate angle *CAE*. Two marks were obtained for obtaining both angles and this was achieved by 4% of candidates. The 10% of candidates that found the missing angle *x* scored 3 marks but only 0.6% of candidates could state the reasons correctly. Few candidates use the three letter notation to identify angles. Some candidates used Z angles in their explanation which is no longer acceptable for alternate angles.

Q41. This question was well attempted by most students, but more often than not, they did not achieve full marks. Common incorrect responses were from students who did not realise that it was necessary to calculate the interior or exterior angle of the pentagon in order to calculate the value of *x*. Other common incorrect responses included, assuming all angles in the quadrilateral, *BCDE*, were equal to 72 or that all the angles in the triangle, *ABE*, were equal to 60. Some students simply did 72÷2 which does lead to the correct answer but is clearly an incorrect and incomplete method and gained no marks. Another common incorrect response which gained 1 mark was where students correctly the found the interior angle of a pentagon then incorrectly did 108÷2 =54.

Q42. No Examiner's Report available for this question

Q43. In part (a) candidates adopted two approaches. Some added up the times, and then attempted a subtraction from 08 50, but 08 50 – 100 required some conversion of minutes into hours and minutes, which some found too difficult. The second method was to start with 08 50 and successively subtract each of the four times, which was far better done. Parts (b) and (c) were well answered. In part (d) two lines needed to be drawn. Most realised that a horizontal section was needed, but of these many terminated the line before 13 50. The majority inserted the correct sloping line, with only a minority drawing a line of incorrect gradient, or of positive gradient (disappearing off the top of the graph).

Q44. Candidates struggled with writing the lengths of the sides of the trapezium algebraically which made accessing this question difficult. Candidates could get some marks though for a numerical approach though many wasted time with exhaustive but fruitless trial and improvement attempts.

Q45. Many students showed a correct first step, dividing 1155 by 15 to work out that 77 students went to the revision day and gained the first method mark. Many got no further. Students who then used a trials approach that did not result in the correct answer gained no more marks. Some went on to work out how many students were sent by each school but correct answers almost always came from a trials method rather than from an algebraic approach. Those that attempted an algebraic solution often failed to give three correct expressions, using x^2 rather than $2x$ or $2x - 7$ rather than $x - 7$, and were unable to use their expressions to form an equation. Most students who got an answer did communicate which school each number represented.

Q46. The candidates that had the most success with this question were those that adopted an algebraic approach. They had an easy route in with one mark available for using *n*, 2*n* and 15 added to equal 63. They could then score a second mark for subtracting 15 from each side of their equation. The candidates that used a trial and improvement method usually fell down because they were confused by the 15 and that we wanted to see a logical approach evidenced by at least two pairs of numbers in the ratio 1 : 2. The candidates that tried an intuitive approach by subtracting 15 from 63 usually went wrong because they divided the 48 by 2 and not 3.

Q47. No Examiner's Report available for this question

Q48. This question was well attempted with few blank responses seen and many students gaining at least one mark, usually for identifying how many packets would fit long a side of the box or showing a correct method to find a volume. Many of these went on to earn a second mark for converting 2m to 200cm or finding a second multiplier. The more successful students used multipliers as those who used the volume approach, without converting to cm, usually reversed the division so failed to gain the third method mark or struggled to work with numbers with so many zeros. The very weakest student were adding dimensions or incorrectly writing 2m = 2000cm.

Q49. Some students scored only 1 mark generally for either writing 8 on the diagram as the length of one of the sides or for 24 × 3. However, most students did not understand that the perimeter of the trapezium did not include the two lines inside the trapezium with 8 × 7 = 56 being the most common answer.

Q50. The most common method employed by those candidates who attempted this question was trial and improvement. This approach resulted in either full marks or no marks. A minority of candidates did attempt to form an equation from the given information. Some omitted to add all four sides and so equated the semi-perimeter to 32 rather than the perimeter. A significant number of candidates who correctly arrived at $8x = 12$ were then unable to get to the correct solution with 1.4 being a common incorrect answer, which came from using the remainder 4 for the decimal when dividing 12 by 8. A common algebraic error was to simplify $4 + 3x$ as $7x$.

Q51. No Examiner's Report available for this question

Q52. Many correctly identified Cosine as the method of solution, found the angle and wrote an appropriate statement to go with it. Some candidates however tried Pythagoras with either the Sine or Cosine Rule with varying degrees of success.

Q53. Most candidates scored either 1 mark (for *AB* = 5 cm), or full marks for finding the length of *AD* correctly. It was very common to see the sine rule being used in the right angled triangle *ABD*, sometimes involving the right angle and sometimes the 54°. A few candidates used tan and Pythagoras in triangle *ABD*. Providing all the steps involved were logically correct, they were awarded the two method marks. Often this approach led to an answer outside the acceptable range, due to accumulation of rounding errors.

Q54. This question was a good discriminator. There were a number of possible routes to finding the length of CE and various approaches were seen by examiners. The most able students produced a concise and accurate solution sometimes involving surds rather than giving interim values as decimals. A large proportion of students were able to find either the width of the rectangle ADCB or the length of its diagonal. Both of these lengths are helpful in providing a fully correct method so were given due credit. Many students also realised that they needed to find the size of a further angle in order to make further progress and this was also given credit. Far fewer students were able to give a fully correct solution. A small proportion of students wrote down 16 cm as their answer without any interim working. They were not awarded the marks. Students are advised that they should always show their working. This question included "You must show all your working" in the demand and students who showed no working were not awarded any marks as it was felt that "16" might have been the result of a guess rather than a correct method. Any working seen in response to this question often lacked clarity or a logical order and this is something which centres may like to make students aware of.

Mark Scheme

Q28.

Question	Working	Answer	Mark	AO	Notes
(a)	$3x + 5y = 4$ $10x - 5y = 35$ $13x = 39$	$x = 3, y = -1$	M M A	1.3b 1.3b 1.3b	M1 for correct method to eliminate one variable M1 for correct method to find second variable A1 for $x = 3$ and $y = -1$
(b)	$x + 5 > 8$ $x > 3$ $2x - 3 < 7$ $2x < 10$ $x < 5$	$x = 4$	B B B	1.3b 1.3b 1.3b	B1 for $x > 3$ or for $x < 5$ B1 for $x > 3$ **and** for $x < 5$ B1 for $x = 4$ from $x > 3$ and $x < 5$

Q29.

		Working	Answer	Mark	Notes
		250 ÷ 100 = 2.5 300 ÷ 50 = 6 600 ÷ 120 = 5 60 ÷ 15 = 4	40	3	M1 for 250 ÷ 100 or 300 ÷ 50 or 600 ÷ 120 or 60 ÷ 15 M1 for 250 ÷ 100 **and** 16 × '2.5' or 2.5 oe seen **and** 16 × '2.5' A1 cao **SC** M2 (16+16+16÷2) oe A1 cao **SC** M2 (250÷ $^{100}/_{16}$) oe A1 cao

Q30.

PAPER: 5MB2H_01					
Question		Working	Answer	Mark	Notes
	(a)		400	2	M1 for the correct scale factor 2.5 oe eg $\frac{20}{8}$, $\frac{8}{20}$, 160+160+80 or 160÷8×20 oe A1 cao
	*(b)		12	3	M1 for number of scones for limiting ingredients, eg 2×6 (=16) or 8+4 (=12) A1 for 12 cao C1 ft (dep on M1) for displaying both limiting calculations and reaching correct conclusion for their working OR M1 for proportion of limiting ingredient e.g. 80 ÷ 40 (=2) or 300 ÷ 200 (=1.5) A1 for 12 cao C1 ft (dep on M1) for displaying both limiting calculations and reaching correct conclusion for their working OR M1 for relating proportion in list to proportion Sophie has. e.g. 200 ÷ 40 or 300 ÷ 80 or 5 or 3.75 or 3.8 oe A1 for 12 cao C1 ft (dep on M1) for displaying both limiting calculations and reaching correct conclusion for their working

Q31.

PAPER: 1MA0_2H				
Question	Working	Answer	Mark	Notes
		£26.50 or HK$325.95	3	M1 for 3179.55 ÷ 12.3 (=258.5) M1 (dep) for 285 - '258.5' A1 for £26.50 (correctly stated with currency) **OR** M1 for 285 × 12.3 (=3505.5) M1 (dep) for '3505.5' - 3179.55 (=325.95) A1 for HK$325.95 (correctly stated with currency)

Q32.

Question		Working	Answer	Mark	Notes
	(a)	96 ÷1.20 OR 1÷1.2 = 0.833… 96 × 0.833…	80	2	M1 for 96 ÷1.20 or 1÷1.2 (= 0.833…) and 96 × "0.833…" A1 cao
	(b)	64.80 ÷1.20 = £54 OR 52.50 × 1.20 = €63 OR 64.80 ÷ 52.50 = 1.23(428….)	Comparison	3	M1 for 64.80÷1.20 A1 for £54 ('£' sign must be included although this could be quoted in their comparison, eg difference of £1.50) C1 (dep on M1) for more (expensive) in Paris oe or ft from their '£54' (the difference in cost is not required but one of the values compared must be one of the values given) OR M1 for 52.50 × 1.2 A1 for €63 ('€' sign must be included although this could be quoted in their comparison, eg difference of €1.80) C1 (dep on M1) for less (expensive) in Manchester oe or ft from their '€63' (the difference in cost is not required but one of the values compared must be one of the values given) OR M1 for 64.80 ÷ 52.50 A1 for 1.23(428….) C1 (dep on M1) for more expensive in Paris since the exchange rate of 1.23(428…) is greater than the given exchange rate of 1.20

Q33.

PAPER: 1MA0 2H				
Question	**Working**	**Answer**	**Mark**	**Notes**
(a)		-15, 0, 3, 0 ,-3, 0, 15	2	B2 for all correct (B1 for any 2 or 3 correct)
(b)		Correct graph	2	M1 for at least 5 points plotted correctly (ft from table if at least B1 awarded in (a)) A1 for a fully correct curve

Q34.

		Working	Answer	Mark	Notes
	(a)		-2 -1 0 1 2 3 4 8 3 0 -1 0 3 8	2	B2 for 8, -1, 0, 8 (B1 for at least two of 8, -1, 0, 8)
	(b)		Correct curve	2	M1 (ft) for at least 5 points plotted correctly A1 for a fully correct curve
	(c)	$x^2 - 2x - 3 = 0$ OR $(x - 3)(x + 1) = 0$	3 and −1	2	M1 for the straight line $y = 3$ drawn to intersect the "graph" from (a) A1 for both solutions **OR** M1 for identifying $y = 3$ from the table A1 for both solutions **OR** M1 for $(x \pm 3)(x \pm 1)$ A1 for both solutions

Q35.

Question	Working	Answer	Mark	Notes
	$\frac{1}{2} \times 4 \times 3 = 6$ $(\frac{1}{2})^2 \times 6 =$	1.5	3	M1 for ½ × 4 × 3 oe M1 for $(\frac{1}{2})^2$ × "6" A1 cao **OR** M2 for ½ × 2 × 1.5 oe (M1 for triangle with all lengths ½ corresponding lengths of triangle *ABC* seen in any position **or** vertices seen at (1, 1) (3,1) and (2.5, 2.5) or stated) A1 cao

Q36.

	Working	Answer	Mark	Notes
		0.5	2	M1 for any suitable right angled triangle drawn against the given line with lengths indicated or used or for use of $\frac{y_2 - y_1}{x_2 - x_1}$ oe A1 for 0.5 oe SC B1 y=0.5x+1

Q37.

Question	Working	Answer	Mark	Notes
		88	4	M1 for (APT =) 180 − (32 + 90) (= 58) M1 for (PTR =) "58" M1 for 360 − ("58" + 124 + 90) A1 cao OR (line XY drawn through Q parallel to AB) M1 for (QRD =) 180 − 124 (= 56) M1 for (XQR =) "56" M1 for (PQX =) 32 A1 cao

Q38.

Question	Working	Answer	Notes
		105	P1 for process to find the exterior angle or interior angle of a hexagon or octagon P1 for process to find the both exterior angles or both interior angles A1 for 105 from correct working

Q39.

Question	Working	Answer	Mark	Notes
	Angle DEC = 180 – 41 =139 Angles on a straight line sum to 180° Angle EDC = 60 – 38 **or** Angle ABD = 180 – 120 – 38 (=22) Co-interior/Allied angles of parallel lines sum to 180° **or** Angles in a triangle sum to 180° **and** Alternate angles x =)180 – '139' – '22' (=19) Angles in a triangle sum to 180° **OR** Angle ADC = 180° – 120° = 60° Co-interior/Allied angles of parallel lines sum to 180° Angle EDC = 22° Angle ECD = 41° – 22° = 19° Exterior angle of triangle equals sum of the two opposite interior angles **OR** Angle DBC = 38° Alternate angles Angle BCE = 101° Angle sum of a triangle is 180° Angle BCD = 120° Opposite angles of a parallelogram are equal Angle ECD = 120° – 101° = 19°	x = 19° and reasons	4	M1 for DBC = 38° **or** ADC = 60°(can be implied by BDC = 22°) **or** ABC = 60° **or** DCB = 120° **or** (ABD =) 180 – 120 –38 (=22) M1 for (BDC =) 60 – 38 (=22) **or** BDC = '22' **or** (DEC =) 180 – 41 (=139) **or** (BCE =) 180 –41 – 38 (=101) M1 (dep on both previous M1) for complete correct method to find x **or** (x =) 19 C1 for x = 19° **AND** Co-interior/allied angles of parallel lines sum to 180° **or** Opposite angles of a parallelogram are equal **or** Alternate angles **AND** Angles on a straight line sum to 180° **or** Angles in a triangle sum to 180° **or** Exterior angle of triangle equals sum of the two opposite interior angles **or** Angles in a quadrilateral sum to 360°

Q40.

Question		Working	Answer	Mark	Notes
*		Angle *ACB* = 35° (base angles of an isosceles triangle are equal) (angles in a triangle add up to 180) Angle *CAE* = 35° (alternate angles are equal) x = 360 – (100 + 90 + 35) = 135 (angles in a quadrilateral add up to 360°)	135	4	M1 for angle *ACB* = (180 – 110) ÷ 2 or 35 seen M1 for angle *CAE* = angle *ACB* or "35" (this could be marked on diagram) A1 x = 135 cao C1 (dep on M1) for alternate angles are equal or allied angles (co-interior angles) are supplementary (add to 180°) AND any one of • (base) or 2 angles of an isosceles triangle are equal oe • angles in a triangle (add up to) 180 • angles in a quadrilateral (add up to) 360° • angles in a pentagon (add up to) 540°

Q41.

PAPER: 5MB3F_01					
Question		Working	Answer	Mark	Notes
			36	3	M1 for 3×180 ÷ 5 (=108) or 540 ÷ 5 (=108) or for a correct calculation to find the exterior angle eg 360 ÷ 5 or 180 – 360 ÷ 5 (=108) M1 (dep) for "108" – 72 or 180 – "360 ÷ 5" – 72 or "360 ÷ 5" ÷ 2 A1 cao OR M1 for $x + x + (72 + x) = 180$ oe or $5(x + 72) = 540$ oe M1 for (x =) (180 – 72) ÷ 3 oe or (x =) 540 ÷ 5 – 72 oe A1 cao

Q42.

Paper 1MA1: 2F				
Question	Working	Answer		Notes
(a)		graph	M1 C1 C1	for method to start to find distance cycled in 36 mins, eg. line drawn of correct gradient or $15 \times \frac{36}{60}$ for correct graph from 9.00 am to 9.36 am for graph drawn from "(9.36, 9)" to (10.45, "9" + 8)
(b)		4.5	M1 A1	for 18 × 0.25 cao

Q43.

Question	Working	Answer	Mark	Notes
(a)	10 + 45 + 20 + 25 = 10 1 hour 40 minutes	07 10	3	M1 for 10 + 45 + 20 + 25 or 100 seen M1 for correct attempt to convert to hours and minutes A1 cao **OR** M2 for clear attempt to subtract all times from 08 50 (may be seen as working backwards) (M1 for clear attempt to take at least one time away from 08 50) A1 cao
(b)		11 20	1	B1 for 11 20 **or** twenty past eleven oe
(c)		12	1	B1 cao
(d)		Straight line from (12 20,12) to (13 50,12) and from (13 50,12) to (14 30,0)	3	M1 for straight line segment on graph M1 for straight line with negative segment A1 for correct graph **or** M1 for straight line segment on graph M1 for 12 ÷ 18 oe or 40 minutes seen A1 for correct graph SC: B2 for the correct straight line translated to left or right

Q44.

PAPER: 1MA0_2F					
Question		Working	Answer	Mark	Notes
			$5\frac{2}{3}$	4	M1 for $AB = 2x$ or $DC = 2x + 4$ or for 38 – 4 (= 34) M1(dep) for $x + x +$ '$2x$'+ '$2x + 4$' or for "38 – 4" ÷ 6 M1 for '$6x + 4$' = 38 A1 for $5\frac{2}{3}$ oe **N.B.** Accept answers in the range 5.6 to 5.7 if M3 scored **SC** if M0 then B2 for an answer in the range 5.6 to 5.7

Q45.

PAPER: 1MA0_2F				
Question	Working	Answer	Mark	Notes
*	$1155 \div 15 = 77$ $x + 2x + x - 7 = 77$ $4x - 7 = 77$ $4x = 84$ $x = 21$ 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 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

Q46.

		Working	Answer	Mark	Notes
		$x + 2x + 15 = 63$ $3x = 48$	16	3	M1 for $x + 2x + 15 = 63$ M1 for attempt to subtract 15 from each side of their equation A1 cao **or** M1 for 63 – 15 (=48) M1 for '48'÷3 A1 cao **or** M2 for16 and 32 seen (M1 for strategy for finding at least two pairs of marbles that meet the criteria x, $2x$) A1 cao

Q47.

Paper 1MA1: 3F			
Question	Working	Answer	Notes
		48	P1 For start to process eg.$96 \div 12$ or $96 \div 2$ A1 cao

Q48.

JustMaths

Paper: 5MB2F_01					
Question		Working	Answer	Mark	Notes
			500	4	M1 for a correct method to convert cm to m or m to cm or cm^3 to m^3 or m^3 to cm^3 (can be implied eg 4 packets drawn in container height) M1 for correct method for one volume or correct method to get at least 2 multipliers from packet to container (can be implied on the diagram) M1 for complete correct method (ignore incorrect conversions) A1 cao

Q49.

5MB2F_01 November 2015					
Question		Working	Answer	Mark	Notes
			40	3	M1 for $24 \div 3$ (= 8) M1 for "8"× 5 A1 cao OR M1 for 3×24 (= 72) M1 for "3×24" – 8 – 8 – 8 – 8 A1 cao

Q50.

		Working	Answer	Mark	Notes
			1.5	4	M1 for correct expression for perimeter eg. $4 + 3x + x + 6 + 4 + 3x + x + 6$ oe M1 for forming correct equation eg. $4 + 3x + x + 6 + 4 + 3x + x + 6 = 32$ oe M1 for $8x = 12$ **or** $12 \div 8$ A1 for 1.5 oe **OR** M1 for correct expression for semi-perimeter eg. $4 + 3x + x + 6$ oe M1 for forming correct equation eg. $4 + 3x + x + 6 = 16$ M1 for $4x = 6$ **or** $6 \div 4$ A1 for 1.5 oe

Q51.

Question	Working	Answer	Notes
		complete chain of reasoning	C1 starts chain of reasoning eg finds area of large square and area of triangle or use of Pythagoras C1 for $(x + y)^2 - 4\times (x\times y\div 2)$ oe or $\sqrt{x^2 + y^2} \times \sqrt{x^2 + y^2}$ C1 complete chain of reasoning with correct algebra

Q52.

		Working	Answer	Mark	Notes
		cos y = 2.25 ÷ 6 y = cos^{-1} (2.25 ÷ 6) OR 6cos 75 = 1.55…	The ladder is not safe because y is not near to 75	3	M1 for cos y = 2.25 ÷ 6 oe M1 for cos^{-1} (2.25 ÷ 6) C1 for sight of 67-68 and a statement eg this angle is NOT (near to) 75° and so the ladder is not steep enough and so not safe. OR M1 for cos 75 = x ÷ 6 M1 for 6cos 75 C1 for sight of 1.55(29…) and a statement eg that 2.25 NOT (near to) 1.55 and so the ladder is not steep enough and so not safe.

Q53.

Question		Working	Answer	Mark	Notes
		AB = 5 sin 36 = $^5/_{AD}$ AD = $^5/_{\sin 36}$ Or sin 36 = $^5/_{BC}$ BC = $^5/_{\sin 36}$ AD = BC OR cos 54 = $^5/_{BC}$ BC = $^5/_{\cos 54}$	8.51	4	B1 AB = 5 M1 sin 36 = $^5/_{AD}$ or $^{\sin 36}/_5$ = $^{\sin 90}/_{AD}$ M1 AD = $^5/_{\sin 36}$ or AD = $^{5 \sin 90}/_{\sin 36}$ A1 8.5 – 8.51 OR M1 sin 36 = $^5/_{BC}$ or $^{\sin 36}/_5$ = $^{\sin 90}/_{BC}$ M1 BC = $^5/_{\sin 36}$ or BC = $^{5 \sin 90}/_{\sin 36}$ B1 AD ='BC' A1 8.5 – 8.51 OR B1 angle DCB = 54 or angle DBC = 36 M1 cos 54 = $^5/_{BC}$ M1 BC = $^5/_{\cos 54}$ A1 8.5 – 8.51 NB other methods such as tan + Pythagoras must be complete methods and will earn M2

Q54.

PAPER: 1MA0_2H				
Question	**Working**	**Answer**	**Mark**	**Notes**
	BC = $\frac{12}{\tan 60}$ = 6.92(8…) DE = 6.92(…) × tan 30 = 4 CE = 12 + 4 AC = $\frac{12}{\sin 60}$ = 13.8(5…) CE = $\frac{13.8(5\ldots)}{\cos 30}$	16 with supporting working	4	M1 for a method to find BC or AC or AD B1 for angle EAD = 30° or AED = 60° or ACD = 30° or CAD = 60° M1 for a method to find CE A1 for 15.9-16.1 with supporting working