BUMPER "BETWEEN PAPERS" PRACTICE

SUITABLE FOR BOTH FOUNDATION & HIGHER TIERS

SUMMER 2019

EXAMINERS REPORT & 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 IT MAY STILL COME UP ON PAPERS 2 OR 3 ...

WE KNOW HOW IMPORTANT IT IS TO PRACTICE, PRACTICE, PRACTICE .... SO WE'VE COLLATED A LOAD OF QUESTIONS THAT WEREN'T EXAMINED IN THE PEARSON/EDEXCEL 9-1 GCSE MATHS PAPER 1 BUT WE CANNOT GUARANTEE HOW A TOPIC WILL BE EXAMINED IN THE NEXT PAPERS ...

ENJOY!
MEL & SEAGER

Questions from Edexcel's Exam Wizard compiled by JustMaths – this is NOT a prediction paper and should not be used as such!

Q1. Under a half of all students showed any understanding of significant figures and under one third of students scored both marks for their answers to this question.
Answers to part (a) were more often successful than answers to part (b). A very common error in part (b) was to give 6.0 as the answer. Students did not realise that the "0" signified that the number was being written to 2 significant figures.

Q2. Students were able to score on this question, 0.25 and 15/100 were usually correct. Occasionally 17/40 was converted into a percentage rather than a fraction.

Q3. No Examiner's Report available for this question

Q4. Generally, this question was answered quite poorly. Many students appreciated the need to subtract the three lengths from 10 metres but they were often unable to cope with the mix of centimetres and metres. Many of the students who showed knowledge of 100cm = 1m failed to change all the measurements into the same units. It was common to see 1000 – 41 – 3.7 – 112 = 843.3 (with 3.7 m treated as 3.7 cm even though 10m has been changed into 1000 cm). The attempts at conversion often resulted in errors such as 3.7m = 307cm, 112cm = 1.2 m, etc. Some of the students who carried out the conversions correctly and arrived at a result of 4.77 or 477 lost the final mark because they failed to include the correct units with their answer.

Q5. There were many correct responses to part (a) but many wrote 0.37, 0.46, 0.401, 0.439 often because they were trying to order 37, 46, 401 and 439
In part (b) many students tried to convert all the numbers to decimals but then struggled to convert $\frac{7}{8}$ to a decimal and often wrote that $\frac{2}{3}$ was 0.6 when written as a decimal.

Q6. No Examiner's Report available for this question

Q7. A number of candidates were able to score the available mark for parts (a) and (c) of this question. The majority of candidates were able to score the available mark for part (b) of this question.
In part (a) "10" was a commonly seen incorrect answer and in part (c) a significant proportion of candidates confused the term "factor" with the term "multiple" giving "60" as their answer.

Q8. Nearly all candidates gave the correct answer to part (a).It was therefore surprising when incorrect diagrams were sometimes given in part (b), having demonstrated sound understanding in part (a), even inconsistently in part (b). For example, it was not uncommon to find a correct answer for Friday, and then a diagram similar to that in Tuesday given for Thursday. Most were able to give the correct diagrams for Friday. Whilst some latitude was given for poor diagrams, the size of the single (¼) box in Friday sometimes prevented the award of the mark, particularly when it approximated the size of a full box, though without the internal lines.

Q9. Many students did not appreciate that the number of cards with an A on it was half of the total number of cards. There were as many incorrect responses of 'likely' as there were correct responses of 'evens'! However, nearly all students were able to go on and get parts (b) and (c) correct.

Q10. Many candidates drew a kite, though a square or rhombus was also a popular shape drawn. In most cases the shape was drawn freehand. In part (b) it was not common for the correct name; trapezium, square, rhombus were regularly seen.

Q11. This proved difficult for most students although 15×8 and 11×15 were often seen. Even those students who subtracted 120 from 138 to get 18 failed to understand that their answer of 6 was not x and had to be subtracted from 15 to get the correct answer of 9. Many students were unable to grasp the task correctly and tried various multiplications which were not valid. Hardly any algebraic approaches were seen. Many assumed that the 15cm length was halved or that the two areas were equal. Trial and improvement was also a common method.

Q12. Point E was correctly identified as the answer for part (a) by most students. The most common incorrect response was D, corresponding to the point (1, 4).
In part (b) students usually plotted a point which with points A, B and C formed a kite. Sometimes students failed to label the point but the mark was awarded provided the answer was unambiguous. Writing down the coordinates of P was not done as well as might have been expected with many students writing down the y coordinate as the x coordinate and vice versa.

Q13. No Examiner's Report available for this question

Q14. Less than 15% of candidates gained full marks on this question. Errors included incorrect order of operations evaluating $(2 \times 4)^2$, incorrect substitution followed by attempts at 24^2 and multiplication of 4 by 2 rather than squaring. Unfortunately, some candidates who dealt with the x^2 term correctly went on to lose a mark for incorrectly adding 32 and 7 with 41 often seen.

Q15. Nearly two thirds of candidates were unable to produce a graph or set of points which merited part marks. There were many blank responses and some cases where candidates took the numbers from $y = 2x - 3$ and –2 to 2 given to form and plot two pairs of coordinates (2, –3) and (–2, 2). Where candidates

set up a table of values, many had errors with negative values of x and were unable to make further progress. When an accurate table was used, candidates usually went on to plot correctly with just under 25% gaining full marks.

Q16. Many students gave the correct answers in part (a) and dealt with the negative value well. Others were unable to deal with the cube irrelevant of the sign of x. Plotting coordinates was fine for students but many lost the last mark by not drawing a smooth curve through the points. Several line segment graphs were seen.

Q17. Another well answered question. A few students used a scale factor of 3; free hand drawings were accepted.

Q18. No Examiner's Report available for this question

Q19. This was a fairly well attempted question by candidates with only about a quarter of candidates failing to score. A few candidates were awarded just the first mark, generally for 90 × 0.2 and just over half the candidates scored all three marks. Many candidates divided 90 by 0.2, leading to an incorrect answer of 450.

Q20. The responses to this question were mostly awarded full marks or no marks. A common misconception was to read the question as a direct proportion problem with many candidates giving 18 as an answer from (12 ÷ 4) × 6. Of those who started with the correct relationship most went on to achieve a correct answer although there were a significant number of candidates who failed to rearrange the formula correctly to find k. Those candidates who approached the problem by a numerical route gained 1 mark for 6 ÷ 4 (1.5) but often used the 1.5 as a multiplier rather than a divisor.

Q21. It was pleasing to see how well candidates coped with this question. Nearly ¾ of the candidates scored all 5 marks with a further 11% scoring 4 marks. Most candidates were clearly aware of the need to find a common multiple of 24 and 40 but many had difficulty adding 24 successively to produce a list of multiples. This led to some very extensive searches as 120 was missed. The few who used factorisation or factor trees usually completed the question well showing their understanding of LCM and HCF. Once 3 packs of rolls and 5 packs of sausages (or multiples of these) were found, most could then go on to find the correct number of hot dogs. However a substantial number of candidates then either doubled their 120 or halved their 120 losing the final accuracy mark.

Q22. Those who knew how to find 2.5% of a quantity usually went on to gain full marks, though there were some who made arithmetic errors in their calculation. Some chose to compare the interest, while some compared the final amount, or even the difference, but all this was usually done with clarity.

Q23. No Examiner's Report available for this question

Q24. No Examiner's Report available for this question

Q25. No Examiner's Report available for this question

Q26. No Examiner's Report available for this question

Q27. The most common successful approach to solve this problem is to convert all the two standard form numbers to ordinary numbers. This was very often done successfully.
Answers were accepted written in either ordinary or standard form. The most common error came with the incorrect conversions including: 2.5 × 10−2 which was then written as −250 or 0.25 or 0.0025 or 250 and with 2.5 × 102 written as 2500 or 0.025

Q28. Generally a well answered question with many good concluding statements seen. The majority of candidates demonstrated sound compound interest calculations, with errors mainly seen in the work of those who chose to use multipliers (eg 1.3 rather than 1.03). A few spoilt their solution by using £4000 instead of £40000

Q29. Many students were not able to draw an enlargement of the given shape. However, most students were able to score 1 mark generally for enlarging the vertical and horizontal line correctly.

Q30. Only a small proportion of students could write 4.7×10^{-1} as an ordinary number. 47 was a common incorrect answer seen. Most students were able to use their calculator to work out the value of the calculation in part (b) and get 2 280 000 000. These students scored at least one mark, but many of them were not then able to write the number in standard form. Common incorrect answers here were 22.8×10^8 and 228×10^7.

Q31. This question was well attempted and many students gained full marks having drawn an equilateral triangle with the correct construction arcs. Some students were clearly not constructing the triangle using compasses and so could only gain a maximum on 1 mark for drawing an equilateral triangle. It was very rare to award 1 mark for seeing a correct construction arc without an attempt at drawing the triangle. It was obvious that some students were drawing free hand.

Q32. In part (a), the majority of candidates knew that the median was the middle number even if they tried to find the median without ordering the list. Many candidates did order the numbers with most then able to

give the correct answer. Some failed to order all the numbers. Those candidates who did not order the numbers often gave 2 as the answer. If it was clear from the working that 2 had been chosen because it was the middle number, then a method mark was awarded.

Part (b) was answered very well with many candidates able to find the range correctly, often with 9 – 1 shown in the working space.

Q33. Many candidates successfully drew both bearings and correctly identified the position of T as the point of intersection. When only one of the bearings was drawn correctly this was more often the bearing of 060° rather than the bearing of 285°. The main problems were incorrect use of a protractor and failing to realise that T would lie where the two lines crossed. Some candidates drew both bearings correctly but did not extend the lines far enough to give an intersection.

Q34. This algebra question on indices gave a large range of marks. Almost all candidates gave the correct response to $a^4 \times a^5$ but, when it was made more complicated in part (b), this percentage dropped to about a third for full marks and 1 mark was awarded to those candidates who could write two of the components in the answer correctly.

It was disappointing to see so many candidates dividing the powers to give e^6 or f^4. Most worrying was seeing candidates cancelling the 5 from the 45 to give 4, dividing the 5s to give 41, or even subtracting the 5 to give 40.

Using a fractional index was not very well understood as only a quarter of the candidature gained the mark for the square root of 9, with 4.5 being a common wrong answer.

Q35. Students had little success with changing the subject of this formula with a few managing the first step, invariably to subtract 8 from both sides. Errors with algebraic manipulation were common with addition of 8 or even subtraction of 5 from both sides seen.

Q36. It is encouraging to report that over half of all candidates gave fully correct responses to this question. It was common to see the correct method for each part clearly written in the working space. Where candidates had identified a correct method, some made careless errors.

For example the answer "5.5" was seen often for part (a) and in part (b) candidates often totalled the numbers correctly only to divide their total by 8 or 10 instead of by 9. In working out the mean candidates often omitted brackets and wrote "4 + 8 + 5 + 9 + 10 +5 + 6 + 3 + 4 ÷ 9" instead of the correct "(4 + 8 + 5 + 9 + 10 +5 + 6 + 3 + 4) ÷ 9". When trying to find the median many candidates forgot to order the list before selecting the "middle number".

A significant minority of candidates were confused between the different statistical measures and it was not uncommon to see the mean worked out for part (a) and the median for part (b).

The range also appeared in some candidates' responses to either part (a) or Part (b).

Q37. No Examiner's Report available for this question

Q38. In part (a), most candidates understood what a stem and leaf diagram entailed. The most common mistakes included omitting a key and providing an unordered diagram. Around a quarter of candidates scored no marks but typically did so by either giving a tally in each row or showing full numbers rather than just the units. Students need to be reminded to count the number of pieces of data in the question and to check they have the same number in the completed diagram.

Following on from part (a), many candidates drew a stem and leaf diagram for the boys in part (b). In these instances the majority did not use their diagram to identify key features of the data such as median and range and therefore failed to make a valid comparison. Candidates who carried out calculations often included the mode and median and were awarded marks for the median. At this level, weaker candidates calculated the range but were unable to interpret it as 'spread' correctly. Candidates who calculated the mean were generally able to give a valid comparison. A significant number scored 0 as a result of only comparing the smallest and tallest boy/girl or by making other unqualified statements having completed no calculations.

In a starred question such as this it is essential that students understand that any comparative statements must involve quotation of statistics, their interpretation and a clear link back to the context of the data, in this case the heights of the boys and the girls.

Q39. Almost all students identified correctly the number of stars in Pattern 5 and most students also identified the number of triangles in Pattern 6, though some students counted the number of triangles in the next pattern, Pattern 5.

More able students also answered part (c) correctly. Some less able students drew an incorrect diagram which consisted of a parallelogram formed from the triangles rather than a trapezium. ome students found the number of triangles corresponding to the pattern with 5 stars then doubled this to find the number of triangles corresponding to the pattern with 10 stars, a clearly incorrect strategy.

Q40. No Examiner's Report available for this question

Q41. Part (a) was generally well answered.
There were problems for candidates with part (b) because the scale on the Judge A axis went up in 2s so many looked above 48 rather than 44. The practice of looking at the two values nearest the gap and halving the two values was seen more often.
This usually leads to an acceptable answer. Here it led to (42 + 56) ÷ 2 giving 49. However, many candidates could not read the judge B scale correctly as it went up in 2s also. In many cases answers were given just outside the accepted tolerance but were awarded no marks as there was no supporting work on the scatter diagram.

Q42. No Examiner's Report available for this question

Q43. No Examiner's Report available for this question

Q44. No Examiner's Report available for this question

Q45. No Examiner's Report available for this question

Q46. Pie charts remain a poorly answered question. Many errors were seen here, such as in totalling the frequencies, calculating the angles, and accuracy in drawing the angles. There were also many guesses seen when it came to drawing angles suggesting that protractors were not always being used by candidates with too many pie charts in which there were more than four sectors.

Q47. Most candidates were able to score some marks for calculating the correct angles, but few were able to give fully correct reasons for their calculations. A common incorrect reason for 360 – 300 was 'angles in a circle sum to 360'. A significant number of candidates thought the triangle was equilateral or isosceles.

Q48. No Examiner's Report available for this question

Q49. No Examiner's Report available for this question

Q50. A fairly small number of candidates achieved full marks on this question. Candidates often arrived at a correct final answer between 6.86 and 6.88 from an incorrect method. The majority of candidates who arrived at the final answer gave it to three decimal places as opposed to three significant figures, but were not penalised for this.
It was disappointing to note that a number of candidates failed to score. Candidates commonly used the wrong formula for calculating the area of a circle, finding the circumference instead. A small number of candidates were able to find the area of the circle correctly but then failed to halve this, scoring no further marks. This question highlighted many candidates' poor knowledge of formulae associated with circles.

Q51. No Examiner's Report available for this question

Q52. No Examiner's Report available for this question

Q53. No Examiner's Report avawilable for this question

Q54. No Examiner's Report available for this question

Q55. No Examiner's Report available for this question

Q56. Very few students offered a convincing, fully correct solution to this question. Many demonstrated confusion between interior and exterior angles; 72o was often seen as an interior angle in the diagram. Even those giving the interior angle as 108o, often then failed to complete the solution correctly; many times angle BCD was shown as 108o and angle ACF as 90o followed by working just showing 108 – 90 or 90 – 72. Even though this gave the correct numerical answer, it was clear that it was the result of an incorrect method. Some students, even though they found an interior angle, thought that angle ABC was 90 or assumed that triangle ABC was equilateral. It was also fairly common to see AC as a bisector of angle BCA.

Q57. This question was well attempted by students and they were gaining the full range of marks. The weakest candidates often gained a mark for finding an angle but usually could not see how to proceed to find TR with many drawing in extra lines to create what they assumed to be right-angled triangles or made assumptions that their lines had bisected angles and so led to incorrect final answers. The slightly more able usually correctly used the Sine Rule to find the length of AR but were unable to then correctly use the Cosine Rule or tried to apply the Sine Rule again so only gained three marks. The most able students were able to correctly apply both the Sine and Cosine rule but some lost the accuracy mark due to premature rounding in their working out.

Q58. No Examiner's Report available for this question

Q59. No Examiner's Report available for this question

Q60. Forming and solving simultaneous equations proved to be where many students stopped gaining marks. Many students attempted to solve this problem through a trial and improvement method, normally with

little or no success. Of those who gained a mark for forming 2 equations, many then had no strategy for solving them. Those who did have a strategy often made arithmetic errors leading to incorrect answers.

Mark Scheme

Q1.

Question	Working	Answer	Mark	Notes
(a)		7000	1	B1 cao
(b)		6	1	B1 cao

Q2.

5MB3F/01 June 2015				
Question	Working	Answer	Mark	Notes
(a)		0.25	1	B1 cao
(b)		$\frac{15}{100}$	1	B1 for $\frac{15}{100}$ oe
(c)		$\frac{17}{40}$	1	B1 for $\frac{17}{40}$ oe

Q3.

Question	Working	Answer	Notes
		$7.15 \leq x < 7.25$	B1 for 7.15 and 7.25 B1 cao

Q4.

Question	Working	Answer	Mark	Notes
		4.77 m 477 cm	4	M1 for intention to subtract the 3 lengths from 10 m M1 for 1000 – (41 + 112 + 370) oe or 10 – (0.41 + 1.12 + 3.7) oe A1 for 4.77 or 477 oe B1 for correct units with final answer

Q5.

5MB2F_01 November 2015				
Question	Working	Answer	Mark	Notes
(a)		0.37, 0.401, 0.439, 0.46	1	B1 cao
(b)	$\frac{1}{4}, \frac{1}{2}, \frac{2}{3}, \frac{3}{4}, \frac{7}{8}$ 0.75, 0.875, 0.25, 0.5, 0.66	$0.25, \frac{1}{2}, \frac{2}{3}, 75\%, \frac{7}{8}$	2	M1 for attempt to convert all to same form or one error in ordered listing A1 for correct order (Accept 0.67 or 0.66 for $\frac{2}{3}$) (SC: B1 for order reversed)

Q6.

Paper 1MA1: 1F			
Question	Working	Answer	Notes
		1, 2, 4, 5, 10, 20	M1 for at least 3 factors A1 for all factors with no additions

Q7.

Question		Working	Answer	Mark	Notes
	(a)		16 or 4	1	B1 for 4 or 16 (or both)
	(b)		21	1	B1 cao
	(c)		10 or 15	1	B1 10 or 15 (or both)

Q8

Question		Working	Answer	Mark	Notes
	(a)		18	1	B1 cao
	(b)		¼ box 3 full size boxes	2	B1 cao B1 cao

Q9.

PAPER: 5MB1F_01					
Question		Working	Answer	Mark	Notes
	(ai)		evens	2	B1 for evens circled oe
	(aii)		unlikely		B1 for unlikely circled oe
	(b)		cross at 0	1	B1 for 0 marked with a cross

Q10.

Question	Working	Answer	Mark	Notes
(a)		Kite drawn	1	B1 Accept a rhombus, square, etc.
(b)		Parallelogram	1	B1

Q11.

PAPER: 1MA0_1F					
Question		Working	Answer	Mark	Notes
			9	4	M1 for method to find the area of one rectangle eg 15×8 (=120) or 15×11 (=165) M1 (dep) for subtraction from/by given area eg 138 – "120" (=18) or "165" – 138 (=27) M1 for final step from complete method shown eg $15 - "18" \div 3$ or for "27" ÷ 3 A1 cao **OR** M1 for a correct expression for the area of one rectangle eg $(8+3) \times (15-x)$ or $8 \times x$ M1 (dep) for a correct equation eg $(8+3) \times (15-x) + 8 \times x = 138$

Q12.

Question		Working	Answer	Mark	Notes
	(a)		E	1	B1 cao
	(b)(i)		*P* marked	2	B1 for correct point marked, eg (1, −1)
	(ii)		coordinates of *P*		B1 for correct coordinates for 'point'

Q13.

Question	Working	Answer	Mark	Notes
(i)		Explanation	C1	e.g. has multiplied before squaring
(ii)		Explanation	C1	e.g. evaluated $(-4)^2$ incorrectly, or not correctly inserted brackets.

Q14.

Question	Working	Answer	Mark	Notes
	2×4×4+7=32+7=39	39	2	M1 for 2 × 4×4 or 2× 16 A1 cao

Q15.

Question	Working	Answer	Mark	Notes
	Table of values x | −2 | −1 | 0 | 1 | 2 y | −7 | −5 | −3 | −1 | 1 OR Using $y = mx + c$ Gradient 2 intercept –3	Single line drawn from (–2, –7) to (2, 1)	3	**(Table of values)** M1 for at least 2 correct attempts to find points by substituting values of x. M1 (dep) ft for correctly plotting at least 2 of their points (any points plotted from their table must be plotted correctly) A1 for the correct line from (-2, -7) to (2, 1) OR **(No table of values)** M2 for at least 2 correct points (and no incorrect points) correctly plotted or for a line segment of the graph of $y = 2x – 3$ drawn (ignore any additional incorrect line segments) [M1 for at least 3 correct points plotted with no more than 2 incorrect points] A1 for the correct line from (-2, -7) to (2, 1) OR **(Use of $y = mx + c$)** M2 for a single straight line of gradient 2, passing through (0, -3) [M1 for a single straight line of gradient 2 or for a single straight line passing through (0, -3)] A1 for the correct line from (-2, -7) to (2, 1)

Q16.

5MB3F/01 June 2015				
Question	Working	Answer	Mark	Notes
(a)		7, -2, -1	2	B2 for all three correct values 7, -2, -1 (B1 for 2 correct values 7, -2 or -1)
(b)		Correct curve	2	B2 for fully correct curve (B1 ft for at least 5 points plotted correctly)

Q17.

PAPER: 5MB3F_01					
Question		Working	Answer	Mark	Notes
			Correct triangle	2	M1 for one side correct and a triangle or a correct enlargement with a scale factor of 3 A1 correct triangle (any orientation)

Q18.

Question	Working	Answer	Mark	Notes
(a)		Shape drawn	M1	shape drawn in correct orientation at (4, 5) (3, 7) (7, 7)
			A1	cao
(b)		description	B1	ft for rotation, 90° anticlockwise, centre (5, 4) oe

Q19.

		Working	Answer	Mark	Notes
			3	3	M1 for 90 × 0.2 (= 18) M1(dep) for (90 × 0.2) ÷ 6 or '18' ÷ 6 A1 cao OR M1 for 6 ÷ 0.2 (= 30) M1(dep) for 90 ÷ (6 ÷ 0.2) or 90 ÷ '30' A1 cao OR M1 for 6 ÷ 90 (= 0.0666... seen) M1(dep) for 0.2 ÷ (6 ÷ 90) A1 cao OR M1 for 6 × (1÷ 0.2) or 6 × 5 or (= 30) M1(dep) for '30'+'30'+'30' A1 cao

Q20.

PAPER: 1MA0_2H					
Question		Working	Answer	Mark	Notes
			8	3	M1 for $p = \frac{k}{t}$ oe $(k \neq 1)$ or $12 = \frac{k}{4}$ M1 for correct method to find k or $p = \frac{48}{t}$ oe or (dep on M1) for k=48 A1 cao OR M1 for $\frac{6}{4}$ oe M1 for $12 \div \frac{6}{4}$ oe A1 cao

Q21.

Question	Working	Answer	Mark	Notes
	LCM (40, 24) = 120 Rolls 120 ÷ 40 = Sausages 120 ÷ 24 = OR Rolls 40 is 2×2×2 (×5) Sausages 24 is 2×2×2 (×3)	Rolls (packs) 3 Sausages (trays) 5 Hot dogs 120	5	M1 attempts multiples of either 40 or 24 (at least 3 but condone errors if intention is clear) M1 attempts multiples of both 40 and 24 (at least 3 but condone errors if intention is clear) M1 (dep on M1) for a division of 40 or 24 or counts up 'multiples' (implied if one answer is correct or answers reversed) A1 rolls (packs) 3, sausages (trays) 5 OR any multiple of 3,5 A1 hot dogs 120 or ft on both of their packs or ft 'common multiple'

Q22.

5MB3F_01 November 2015				
Question	Working	Answer	Mark	Notes
		Correct reason	3	M1 for $\frac{2.5}{100} \times 1000$ (=25) oe M1 (dep) for "25"× 2 A1 for £50 (or £10 more) or states 1050 & 1060 OR M1 for $\frac{60}{1000} \times 100$ (=6) oe M1 (dep) for "6"÷2 A1 for 3% (or 0.5% more) OR M1 for $\frac{60}{1000} \times 100$ (=6) oe or 2×2.5 (=5) M1 for $\frac{60}{1000} \times 100$ oe and 2×2.5 A1 for 6% and 5%

Q23.

Question	Answer	Notes
	$2^3 \times 3^2 \times 7$	M1 for at least 3 correct divisions by a prime factor (may be seen in a factor tree) M1 for 2, 2, 2, 3, 3, 7 (condone inclusion of 1); may be seen in a factor tree A1

Q24.

Paper 1MA1: 1F			
Question	Working	Answer	Notes
(a)		42, 58 39, 3, 53, 5	C1 starts to interpret information eg. one correct frequency C1 continue to interpret information C1 communicates all information correctly
(b)		$\frac{5}{58}$	M1 ft for $\frac{a}{58}$ with $a < 58$ or $\frac{5}{b}$ with $b > 5$ A1 ft from (a)

Q25.

Question	Working	Answer	Mark	Notes
(a)			2	M1 correct length line or one correct end and line A1 cao
(b)		$n > 4.8$	2	M1 for subtracting 3 from both sides or dividing all terms by 5 as a first step ($n = 4.8$) A1 cao

Q26.

Question	Working	Answer	Mark	Notes
		33.7	P1	for starting to use Pythagoras, e.g. $4.5^2 + 7^2$
			P1	for complete process to find KM, e.g. $\sqrt{4.5^2 + 7^2}$ (= 8.321658489)
			P1	(dep P1) for a correct trigonometry statement, e.g. sin KLM = "8.32"…÷ 15
			A1	for answer in the range 33.6 to 33.7

Q27.

5MB2H/01 June 2015				
Question	**Working**	**Answer**	**Mark**	**Notes**
		0.0025 2.5×10^{-2} 2.5×10^{2} 2500	2	M1 for converting all numbers to same form with at least one conversion correct A1 for fully correct order with correct numbers in any correct form (SC B1 if one number incorrectly placed or all 4 numbers listed in reverse order)

Q28.

5MB1H/01 June 2015				
Question	**Working**	**Answer**	**Mark**	**Notes**
*	BS Bank I: 2436 2550 Tot: 42436 42550 %: 1.0609 1.06375	Correct decision with evidence	4	M1 for $40000 \times \frac{3}{100}$ oe (=1200) or 41200 M1 for evidence of a compound interest method eg '41200'$\times\left(\frac{103}{100}\right)$ or $\left(\frac{103}{100}\right)^2 \times 40000$ A1 for 2436 or 42436 C1 (dep at least M1) for correct decision ft for either Bank or Building Society OR M1 for 1.03 M1 for 1.03^2 (= 1.0609) and $\frac{2550}{40000}$ oe A1 for 1.0609 and 1.06375 C1 (dep at least M1) for correct decision ft for either Bank or Building Society

Q29.

Question	**Working**	**Answer**	**Mark**	**Notes**
		drawing	2	M1 for (quadrilateral with) at least 2 correct sides A1 cao

Q30.

Question	**Working**	**Answer**	**Mark**	**Notes**
(a)		0.47	B1	
(b)		2.28×10^{9}	M1	for correct value but not in standard form, eg $22.8 \times 10^{3+5}$, 228×10^{7}, 2 280 000 000 or for 2.28×10^{n}, $n \neq 9$
			A1	cao

Q31.

PAPER: 5MB3F_01				
Question	**Working**	**Answer**	**Mark**	**Notes**
		construction	2	M1 for a correctly drawn equilateral triangle or appropriate construction lines A1 for a correctly drawn triangle with all accurate and appropriate construction lines shown

Q32.

		Working	**Answer**	**Mark**	**Notes**
	(a)		3	2	M1 for ordering at least 8 of the numbers or indicating the middle value of the unordered numbers A1 cao
	(b)		8	2	M1 for 9 – 1 (accept 1 – 9 or 9 to 1 or 1 to 9) A1 cao

Q33.

		Working	Answer	Mark	Notes
			Correct position of T	3	M1 for line drawn or point marked within guidelines from B M1 for line drawn or point marked within guidelines from C A1 for T within region on overlay

Q34.

		Working	Answer	Mark	Notes
	(a)		a^{9}	1	B1 for a^{4+5} or a^{9}
	(b)		$9e^{5}f^{6}$	2	B2 cao (B1 for two of 9, e^{6-1}, f^{8-2} as a product)
	(c)		3	1	B1 (accept ± 3 but not just –3)

Q35.

Paper: 5MB3F_01					
Question		Working	Answer	Mark	Notes
			$h = \frac{x-8}{5}$	2	M1 for intention to either subtract 8 from both sides or divide each term by 5 as a first stage of working A1 for $h = \frac{x-8}{5}$ oe

Q36.

Question		Working	Answer	Mark	Notes
	(a)	3 4 4 5 5 6 8 9 10	5	2	M1 for ordering the 9 numbers A1 cao
	(b)	(4 + 8 + 5 + 9 + 10 + 5 + 6 + 3 + 4)÷9 54 ÷ 9	6	2	M1 for (4 + 8 + 5 + 9 + 10 + 5 + 6 + 3 + 4) ÷ 9 or 54 ÷ 9 A1 cao

Q37.

Paper 1MA1: 2F			
Question	Working	Answer	Notes
		$t = \frac{w-11}{3}$	M1 for $3t = w - 11$ or $\frac{w}{3} = \frac{3t}{3} + \frac{11}{3}$ A1 for $t = \frac{w-11}{3}$ oe

Q38.

Question	Working	Answer	Mark	Notes
(a)		14 | 8 15 | 2 4 16 | 0 2 4 4 8 17 | 0 3 4 9 14|8 = 148 cm	3	B2 for a fully correct ordered diagram (B1 for correct unordered diagram or ordered with at most two errors) B1 for a correct key eg 14|8 = 148 cm (cm not required)
*(b)	Boy's Median = 170 Girl's Median = 164 Boy's Mean = 170(.38) Girl's Mean= 164 Boy's Range = 27 Girl's Range = 31 15 | 7 9 16 | 2 6 8 9 17 | 0 3 4 6 6 18 | 1 4	Compares: medians/means + Range + Spread	3	A maximum 2B marks from: B1 for a correct mean or median for either the boys or the girls. B1 for a correct range for either the boys or the girls. B1 for a correct stem and leaf diagram drawn for the boys (no need for a key) C1 for any correct comparison, which includes the boys and the girls, of either 2 correct (ft) medians or 2 correct (ft) means or 2 correct(ft) ranges or a correct statement following from comparing the correct stem and leaf diagrams, which includes the boys and the girls.

Q39.

Question	Working	Answer	Mark	Notes
(a)		6	1	B1 cao
(b)		11	1	B1 cao
(c)	(s, Δ) = (2,1), (3,3), (4,5), (5,7), (6, 9), (7, 11), (8, 13), (9, 15), (10, 17)	17	2	M1 for relating number of triangles to number of stars for at least one pattern greater than Pattern 7, eg (8, 13), (9, 15) or (10, 17) or for identifying Pattern 9 A1 cao

Q40.

Paper 1MA1: 2F			
Question	Working	Answer	Notes
(a)		$160 < h \leq 170$	B1 for identifying the correct class interval
(b)		1. Points should be plotted at mid-interval values 2. The polygon should not be closed	C1 for a correct error identified C1 for a correct error identified

Q41.

Question	Working	Answer	Mark	Notes
(a)		positive	1	B1 Accept with 'positive' valid extra words eg strong positive
(b)		46 – 54	2	B2 46 – 54 Or M1 for a single line segment with positive gradient that could be used as a line of best fit or a vertical line from 44 A1 for given answer in the range 46 – 54

Q42.

Paper 1MA1: 2H			
Question	Working	Answer	Notes
(a)		−1.5	M1 for method to find gradient, eg. 210 ÷ 140 A1 for correct interpretation of the negative gradient
(b)			C1 for explanation, eg. rate of change of depth of water in tank

Q43.

Question	Working	Answer	Mark	Notes
		construction	B2	correct construction showing all necessary arcs.
			(B1)	(pair of intersecting arcs centred on A and B)

Q44.

Paper 1MA1: 3F			
Question	Working	Answer	Notes
		1.0625	P1 for a complete process to find the density of liquid A P1 for a complete process to find the mass of liquid C P1 for a complete process to find the density of liquid C A1 cao

Q45.

Question	Working	Answer	Mark	Notes
		9	M1	for $\sin 30° = \frac{x}{18}$ or $18 \times \sin 30$
			A1	cao

Q46.

Question		Working	Answer	Mark	Notes
		360 ÷ 60 Apple = 18 × 6 = 108 Banana = 23 × 6 = 138 Orange = 9 × 6 = 54 Pear = 10 × 6 = 60	108, 138, 54, 60	4	M1 for evidence of method for at least one angle (could be implied by one correct angle on pie chart or working or in table) A2 for all angles drawn correctly (±2°) (A1 for at least one angle drawn correctly or all angles correct in the table) B1 for sectors labelled with fruit names (dependent on at least one angle drawn correctly and exactly 4 sectors)

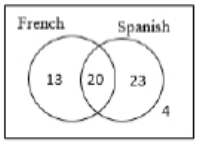
Q47.

		Working	Answer	Mark	Notes
*			85	4	M1 for (angle YXZ =) 360 – 300 (=60) M1 for (angle XYZ =) 180 – 145 (=35) A1 cao C1 (dep on M1) for full reasons and unambiguous notation for angles (may be shown in diagram) (angles around a point sum to 360 and angles on a straight line sum to 180 and angles in a triangle sum to 180)

Q48.

Paper 1MA1: 2H			
Question	Working	Answer	Notes
(a)		0.49	M1 for 0.7×0.7 A1 for 0.49 oe
(b)		0.51	M1 for a correct process, eg. 1 – "0.49" or $0.7 \times 0.3 + 0.3 \times 0.7 + 0.3 \times 0.3$ A1 for 0.51 oe

Q49.

Question		Working	Answer	Mark	Notes
	(a)		Correct diagram	3	B1 13 and 20 in correct positions M1 43 – 20 (= 23) or 60 – 43 – 13 (= 4) A1 correct diagram
	(b)		$\frac{4}{60}$	1	B1 $\frac{4}{60}$ oe or ft Venn diagram for $\frac{"4"}{60}$

Q50.

		Working	Answer	Mark	Notes
			6.87	4	M1 for $\pi \times 4 \times 4$ or $\pi \times 4^2$ or $\pi \times 16$ or $\pi r^2 = 50.26...$ M1 for 'πr^2' ÷ 2 M1 for $8 \times 4 -$ '$\pi r^2 \div 2$' A1 for 6.86 – 6.88

Q51.

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

Q52.

Question	Working	Answer	Mark	Notes
(a)		2	B1	cao
(b)		66	M1	for method for calculating at least 4 values fx values correctly
			A1	cao

Q53.

Question	Working	Answer	Notes
		$4n - 7$	M1 method to deduce nth term e.g. $4n + k$ A1 for $4n - 7$ oe

Q54.

Paper 1MA1: 1F			
Question	Working	Answer	Notes
(a)		$\frac{17}{35}$	M1 for common denominators with at least one numerator correct A1
(b)		$\frac{20}{9}$	M1 for $\frac{5}{3} \times \frac{4}{3}$ or $\frac{20}{12} \div \frac{9}{12}$ A1

Q55.

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

Q56.

PAPER: 1MA0_1H				
Question	**Working**	**Answer**	**Mark**	**Notes**
		18	4	M1 for a method to find the exterior angle of a pentagon eg. $360 \div 5$ (=72) or the interior angle of a pentagon, eg. $180 - 360 \div 5$ (= 108) A1 for 72 or 108 M1 (dep M1) for a fully complete method to find the required angle, *DCF* A1 for 18 or ft their interior or exterior angle

Q57.

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Question	**Working**	**Answer**	**Mark**	**Notes**
		6.2	5	M1 for a method to find an angle $RAB = 70$, $ABR = 50$, $BRA = 60$ or $TAR = 20$ M1 for substitution into sine formula $\frac{AR}{\sin"50"} = \frac{12}{\sin"60"}$ M1 for use of sine rule to find *AR*, $AR = \frac{12}{\sin"60"} \times \sin"50"$ (=10.61) M1 for substitution into cosine formula $TR^2 = 5^2 + "10.61"^2 - 2 \times 5 \times "10.61" \times \cos 20$ (=37.92) A1 for 6.15 - 6.2

Q58.

Paper 1MA1: 3F			
Question	**Working**	**Answer**	**Notes**
		$(x-1)(x+4)$	M1 $(x \pm 1)(x \pm 4)$ A1 $(x-1)(x+4)$ oe

Q59.

Question	**Working**	**Answer**	**Mark**	**Notes**
(a)(i)		$\begin{pmatrix}4\\6\end{pmatrix}$	B1	cao
(ii)		$\begin{pmatrix}11\\14\end{pmatrix}$	M1 A1	for $\begin{pmatrix}2\\8\end{pmatrix}$ oe or $\begin{pmatrix}9\\6\end{pmatrix}$ oe cao
(b)		Diagram	B1	correct vector drawn

Q60.

Question	Working	Answer	Mark	Notes
		Tea £1.40	P1	for setting up two appropriate equations eg $3t + 2c = 7.80$, $5t + 4c = 14.20$
		Coffee £1.80	M1	for method to eliminate one variable, condone one arithmetic error
			M1	for method to substitute found variable or start again
			A1	Tea £1.4(0) and Coffee £1.8(0) with amounts linked to correct drinks