

BUMPER "BETWEEN PAPERS" PRACTICE PAPERS

SET 1 (OF 3)

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 IT MAY STILL COME UP ON PAPERS 2 OR 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 BUT WE CANNOT GUARANTEE HOW A TOPIC WILL BE EXAMINED IN THE NEXT PAPERS ...

ENJOY!

MEL & SEAGER

EXAMINERS COMMENTS

Q1 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.

Q2. All parts of this question were answered well.

Q3. Part (a) of this question was not well done by most students. Common errors included drawing a line from -2 to the left, using a filled in circle at -2 and indicating a line of finite length which ended at 4. Not all students attempted part (b) of the question. Of those students who did attempt this part, a fair proportion of them got

as far as obtaining the value $\frac{8}{3}$ and used this value in their final answer giving $\frac{8}{3}, y = \frac{8}{3}$ or $y < \frac{8}{3}$ on the answer line. Only a small number of students gave an integer answer with some of these students giving 3 as their answer. Some students employed a trial and error approach. A surprising number of these higher tier students made basic errors in the manipulation of the inequality. For example, " $4y - y < 7 - 1$ " was commonly seen.

Q4. Part (a) was well answered. Most candidates were able successfully to write down the coordinates of G and many also found the coordinates of H correctly.

In part (b), candidates who had drawn a line between the two points were generally more successful at finding the midpoint. Many gained part marks by either indicating on the diagram or by writing one correct coordinate. The most common answers that scored no marks were (1,0) where candidates had not made any mark on the diagram.

Q5 Part (a) was successfully answered by about 80% of candidates. Others generally involved indices in their answers with not only d^4 commonly seen but also 4^d . Candidates could be reminded of the need for clear writing in their answers so that $4d$ never looks more like 4^d .

In part (b) the negative sign associated with the $2f$ term caused difficulties. Some candidates ignored it and added $2f$ to $3f$ instead. Others linked it with the preceding 4 instead and often gave $f - 10$ as their final answer. It may be helpful to encourage students to circle or underline each like term together with its preceding sign. Many candidates who gave the correct expression $f + 10$ in their working spoilt their final answer by further incorrect simplification to $11f$.

Q6. Many students were able to produce a suitable diagram to score at least 3 marks. The most common error was to omit the labelling on the frequency axis. Words such as 'Frequency' or 'Number of students' were allowed for this label. Some candidates forgot to put a key but this tended to be rare. By far the greatest number of answers were dual bar charts. Most candidate were able to give a linear scale and to plot the 8 heights correctly.

Q7. This question was found challenging as it was not making the common demand of sharing an amount in a given ratio. There were three successful strategies used. Firstly, some candidates turned it into a problem they were more used to and looked for a number which when shared in the ration 2:5 gave a difference of 45. As they

had calculators this could be done fairly quickly. Secondly, some candidates started with the ratio 2:5 and built up through 4:10, 6:15 and so on until they reached 30:75. Thirdly, some candidates carried out the most efficient method of dividing 45 by 3 and then multiplying the resulting value by 2. Many candidates treated the question as a 'divide in the ratio' and scored no marks. Others gave an answer of 18 obtained from $45 \div 5 \times 2$.

Q8. Part (a) was well answered although some candidates failed to interpret the diagram correctly and gave 2 rather than 32 as the median.

In part (b) 49 was a common incorrect answer from those candidates who worked out the range rather than, as requested, the interquartile range. Others attempted to work out the interquartile range by halving the range. Some candidates worked out that the lower and upper quartiles would come from the 7.75th and 23.25th (or 8th and 24th) values but then went onto subtract 7.75 from 23.25 rather than use the values of the variable associated with them.

Q9. Most candidates attempted to draw triangles B and C with a majority placing them correctly on the grid. Errors in the correct positioning of triangle B or triangle C were sometimes due to candidates not being able to identify the line $x = 1$ and some confused the x - and y -axes. In some cases it was difficult to determine how the candidate had come up with their images. The majority of the candidates who drew triangles B and C in the correct positions were able to give a correct description of the transformation, although a common mistake was to give the centre of rotation as (0, 1) instead of (1, 0). A small number of candidates lost a mark because their description of the rotation did not include an angle or because they wrote the centre of rotation as a vector. Fewer candidates than in the past gave more than one transformation.

Q10. Many fully correct enlargements were seen and those candidates who didn't get full marks often gained two marks for an enlargement with scale factor 3 but in the wrong position. A substantial number of candidates did not seem to understand the significance of the centre of enlargement. A common wrong answer was to use the centre of enlargement as one of the vertices in the enlarged shape. Candidates using the ray method rather than 'counting squares' sometimes misplaced the vertices through inaccurate line drawing. It was disappointing to see some candidates lose marks through carelessness and be up to half a square out with some of their vertices.

Q11. In part (a) too many students failed to understand the term "translate"; this was evidenced by examples of rotations and reflections. Part (b) was answered with greater success. Many noted it was a rotation, and this was usually followed by a description of direction and angle, with only a minority making errors in this statement. Missing out a reference to the centre of rotation was a common error.

Q12. A great many candidates, even at this level, still do not know how to find the area of a triangle; $12 \times 5 = 60 \text{ cm}^2$ was often seen, and candidates would repeat this for the second triangular end. Many candidates again did not read the question carefully and attempted to find volume. Some candidates who did correctly work out the area of the front triangular end at 30 cm^2 then worked out $\frac{1}{2} \times 13 \times 5$ for the triangular end at the back. Other errors were often made by candidates not attempting to find the area of all of the 5 faces. Many candidates made the incorrect assumption that all three of the rectangular faces were identical, usually 20cm by 13cm.

Q13. This standard question was well understood by the candidates. They were able to invert the process and the order and so end up with the correct answer of 30. Several candidates selected the wrong number (usually 50) from an equation in which the correct answer was embedded and a few subtracted 10 from 50 and then divided by 2 giving an answer of 20

Q14. Many students did attempt to make a common denominator but often they only managed to get one of the two fractions correctly converted so could only access two of the three marks available. Others added the fractions correctly but forgot to add the whole number. Some started by converting the mixed number into an improper fraction but then could not cope with 19×7 . Others left their answer as an improper fraction.

Q15. Fully correct algebraic solutions were rare and where sometimes attempted with an assumption that the question would involve a perimeter or even angle total equation.

Some candidates set up a correct equation and found $x = 6$ from incorrect algebra so failed to gain maximum marks. Many candidates used trial and improvement to find $x = 6$ and proceeded to gain full marks following correct substitution in individual side lengths that were then added

Q16. Candidates seemed to be aware that they needed to convert to a common format, with the most common method being to convert all the marks to 'out of 40'. Many candidates found either the 14 or 15. The most problematic conversion was finding $\frac{3}{8}$ of 40 with the common error seen being 3×8 , giving Wendy a winning score of 24. Errors in calculating 35% of 40 came from attempting to multiply by 35 then divide by 100. More popular, and for many it proved easier, was to calculate 35% by doing $10\% + 10\% + 10\% + 5\%$. Any errors here were in finding the 5%. Percentage comparison was the least seen method, and was done with little success.

Working and conclusions were generally well presented, although some did not make clear which mark went with which person. In some instances candidates found the marks for Salma or Wendy, failing to realise that a comparison could only be made when all three had been converted into the same form.

Overall, 24% scored all 4 marks and 50% failed to score. 11% of candidates scored 1 mark for showing a correct method for one conversion.

Q17. Perhaps surprisingly, it is disappointing to report that many students were unable to identify what they needed to do in this question, particularly in part (b). Those students who did realise that they needed to divide cost by number of cubic metres of water often took the readings from one point and divided the y coordinate by the x coordinate rather than the increase in cost divided by the increase in volume, that is they failed to find the gradient of the line. Methods were often not made clear and relatively few students showed a triangle drawn on the line to help them work out the gradient. Where students did draw triangles and use an appropriate method for finding the gradient, they often did not interpret the scales on the axes correctly and so obtained an incorrect answer. Thus relatively few students were awarded 1 mark for a correct method (but an incorrect answer). Some students answered part (b) in the working space for part (a).

Q18. Some candidates attempted this question with a diagram, either a sketch or scaled. In very few cases did this approach help them, since there was clearly little understanding of bearings as drawn clockwise from a north line. It was also common to see reflex angles drawn as obtuse, and vice versa. The most common incorrect answer was 310° , from $360^\circ - 50^\circ$. Other common errors involved confusion of the relative location of the ship and the lighthouse.

Overall, this was a poorly answered question showing bearings as a general weakness.

Q19. Both parts of this questions were answered well by most students. Almost all were able to read the distance from home for part (a), and again many achieved the mark in part (b) for recognising the flat part of the graph represented no movement and interpreted the graph correctly.

Q20. Candidates employed a variety of methods to solve this question. One method involved finding the scale factor (2.5) and scaling up the ingredients, a second involved finding the number of pies one ingredient could produce, whilst a third method involved finding the number of times batches of 18 could be produced (ie $2\frac{1}{2}$)

Q21. It was pleasing to note that over 40% of candidates scored all four marks. Many of those candidates who scored no marks were able to calculate the value of 192.6 or 2692.6 for scheme A, but then failed to negotiate the percentage element of scheme B. Many candidates used a chunking method to find 3% of 2500, mostly with success. Some candidates used a compound interest method correctly and some gained two marks as they then correctly compared both schemes using the same time scale. One common error was for candidates to add £5.35 and 2500, then multiplying this by 36.

Q22. Some candidates found this question more challenging. They could often find 10% and/or 5% but not always of the correct figures. A sizeable number calculated all their percentages from £20,000, either thinking the question was asking for simple interest, or just in error. Thus subtracting £3000 and then £2000 gaining the correct number of years by an incorrect method, this did not gain full marks.

Some candidates stopped after correctly calculating £15,300 and stated 3 years, this was deemed sufficient for full marks.

Q23. There were many instances where arithmetic errors spoilt otherwise sound method. Rearrangement usually led to error, but there were very few trial and improvement approaches. The elimination method was used by nearly all candidates, though $7x = 14$ was the common error.

Q24. The vast majority of candidates were able to score full marks. Some used the full words but obvious abbreviations were also allowed. There were a few responses where the candidate showed a misunderstanding of the nature of the task and gave two starters, for example, as a combination.

Q25.

Q26 For a question such as this, candidates have to decide which (simple) statistics they can and are able to calculate in order for a comparison to be made. Some were

unaware of this and worked out the mean.

Many other candidates worked out the median and the values of the lower quartile and upper quartile as these were given for the distribution of heights of the unfertilised plants. This gained one mark (for the median).

To get further marks, candidates had to work out a measure of spread and then comment on the relationship between the medians and between the interquartile ranges (IQRs) or the ranges. This could be as simple as 'The median of the heights of the fertilised plants is greater than the heights of the unfertilised plants'.

For full marks, it was expected that there would be some simple interpretation, for example, 'Since the median of the fertilised plants is bigger than the median of the unfertilised plants, on average the fertilised plants grew taller'. This sort of response was not frequently seen.

It was very important in this question that the results of calculations were identified, for example, the median had to be stated as 47 (cm). It was not sufficient simply to circle 47 in the list of heights.

Q27. 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.

Q28. Most students approached this question by adding 9 minutes many times to 6.45 and then adding 12 minutes to 6.45. There were some arithmetic errors found when using this approach. Those that were able to do this accurately tended to get the correct answer of 7.21 am. Some students approached this by trying to find the LCM of 9 and 12 but many of these who found the LCM was 36 then failed to add this on to 6.45 am.

Q29. A variety of diagrams were seen. Some candidates insist on joining the first to last points forming an enclosed shape. This may come from their interpretation of the word polygon in this question. Centres should ensure candidates are aware this is not correct when drawing a frequency polygon. Another common error is to plot the heights at the end of the intervals. If candidates did this consistently they were awarded one mark. Some candidates draw the histogram first and then add the frequency polygon, this is an acceptable method and full marks can be awarded.

Q30. 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 .

Q31. Part (a) was fairly well answered being based essentially on knowledge. Part (b) was less successfully answered as it was clear that many students could not use standard form on their calculator. The most common approach was to convert the standard form into ordinary numbers and then use a calculator (or not) to perform the division. This worked often, but many of these students left their answer as 500

or 'five hundred' rather than as 5×10^2 . A few students worked out $3 \div 6 = 0.5$ and $10^7 \div 10^4 = 10^3$ all of which is correct but then missed the second mark because they wrote their answer as 0.5×10^3 .

Q32 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.

Q33. Many candidates drew a net rather than a plan in part (a) and gained no marks. The fact that nets were so common suggests that candidates were not as familiar with the topic of plans and elevation as they should have been. When a rectangular plan was drawn, it was not uncommon for at least one dimension to be wrong.

Candidates were more successful in part (b) with many able to draw a correct sketch of the prism. Some candidates attempted to display more faces than could be seen from any one angle, thus distorting the sketch. Triangular prisms and pentagonal prisms were quite common among the responses awarded no marks.

Q34, This question was very poorly attempted with around three-quarters failing to score. Candidates commonly mixed the methods for finding interior and exterior angles, and only about a fifth of candidates actually arrived at the answer 144 from fully correct working. A very common incorrect answer was 216, where candidates had found each interior angle to be $360 \div 5 = 72$, doubled 72 to get a sum of 144 and then subtracted this from 360, giving an answer 216.

Q35. In part (a), the tree diagram was generally very well done with the majority of candidates gaining full marks. For those that did not, marks were lost by some candidates who did not read the question and answered it as if there was no replacement.

In part (b), many candidates went on to calculate correct probabilities from their tree diagrams even those with mistakes. Some added rather than multiplied the probabilities and arithmetic skills were mixed in this part.

Q36. A familiar style of question that was well answered. In part (a) it was usually only the inability of candidates to process the decimal calculations correctly that prevented them from gaining full marks.

In part (b) candidates should be more careful when picking out the decimal from the table to use; in this case the one for red was needed. Some incorrectly gave their answer as a probability rather than as a number.

MARK SCHEME

Q1.

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)

Q2.

Question	Working	Answer	Mark	Notes
(a)		a^7	1	B1 cao
(b)		b^{14}	1	B1 cao
(c)		1	1	B1 cao

Q3.

PAPER: 5MB3H_01				
Question	Working	Answer	Mark	Notes
(a)		Inequality drawn	2	B2 for all three features of -2 , 0 and right arrow (B1 for two of these features)
(b)		2	3	M1 for isolating the y terms A1 for $3y < 8$ or $3y = 8$ or better B1 ft

Q4.

	Working	Answer	Mark	Notes
(a)(i)		(4, 3)	2	B1 cao
(ii)		(-4, -1)		B1 cao
(b)		(0, 1)	2	M1 for (0, 1) marked on the graph or (0, y) or (x , 1) A1 cao

Q5

Question	Working	Answer	Mark	Notes
(a)		$4d$	1	B1 accept $4 \times d, d \times 4, d4$
(b)		$f + 10$	2	M1 for f or $1f$ or 10 or for $3f$ $2f$ and $4 + 6$ A1 for $f + 10$ (accept $1f + 10$)

Q6.

Question	Working	Answer	Mark	Notes															
	<table border="1"> <tr> <td></td><td>H</td><td>T</td><td>F</td><td>G</td></tr> <tr> <td>M</td><td>3</td><td>8</td><td>15</td><td>9</td></tr> <tr> <td>W</td><td>6</td><td>14</td><td>7</td><td>1</td></tr> </table>		H	T	F	G	M	3	8	15	9	W	6	14	7	1	Diagram or chart	4	<p>B1 for a key or suitable labels to identify the men and women. The key may be ignored if unclear provided the graph is clear, ie if different colours are used to shade in the graph. Give benefit to candidate.</p> <p>B1 for a diagram(s) or chart(s) set up for comparison, showing data for at least 3 sports e.g. dual bar chart, composite bar charts, etc (or frequency polygons)</p> <p>B1 for correct heights for men or women or totals</p> <p>C1 for a fully correct diagram or chart to include 'frequency' oe</p>
	H	T	F	G															
M	3	8	15	9															
W	6	14	7	1															

Q7.

Question	Working	Answer	Mark	Notes																																																																
	$45 \div (5 - 2) (=15)$ '15'×2 OR $45 \times \frac{2}{3}$ OR <table><tr><th>P</th><th>J</th><th>T</th><th>D</th></tr><tr><td>2</td><td>5</td><td>7</td><td>3</td></tr><tr><td>4</td><td>10</td><td>14</td><td>6</td></tr><tr><td>6</td><td>15</td><td>21</td><td>9</td></tr><tr><td>8</td><td>20</td><td>28</td><td>12</td></tr><tr><td>10</td><td>25</td><td>35</td><td>15</td></tr><tr><td>12</td><td>30</td><td>42</td><td>18</td></tr><tr><td>14</td><td>35</td><td>49</td><td>21</td></tr><tr><td>16</td><td>40</td><td>56</td><td>24</td></tr><tr><td>18</td><td>45</td><td>63</td><td>27</td></tr><tr><td>20</td><td>50</td><td>70</td><td>30</td></tr><tr><td>22</td><td>55</td><td>77</td><td>33</td></tr><tr><td>24</td><td>60</td><td>84</td><td>36</td></tr><tr><td>26</td><td>65</td><td>91</td><td>39</td></tr><tr><td>28</td><td>70</td><td>98</td><td>42</td></tr><tr><td>30</td><td>75</td><td>105</td><td>45</td></tr></table>	P	J	T	D	2	5	7	3	4	10	14	6	6	15	21	9	8	20	28	12	10	25	35	15	12	30	42	18	14	35	49	21	16	40	56	24	18	45	63	27	20	50	70	30	22	55	77	33	24	60	84	36	26	65	91	39	28	70	98	42	30	75	105	45	30	3	<p>M1 for $45 \div (5 - 2)$ M1 for '15'×2 A1 cao for 30</p> <p>OR M2 for $45 \times \frac{2}{3}$ oe (M1 for $45 \times \frac{1}{3}$) A1 cao for 30</p> <p>OR M1 for (2, 5); 4, 10; 6, 15; 8, 20 M1 for a completely correct list up to 30, 75 A1 cao (SC if M0 then B1 for 18 given as the answer)</p>
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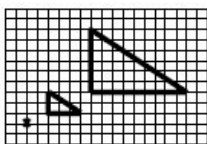
Q8.

Question	Working	Answer	Mark	Notes
(a)		32	1	B1 cao
(b)	LQ = 21 UQ king = 45	24	2	<p>M1 for 45 or 21 or 43.5 or 19.5 or 7.75th or 8th or 23.25th or 24th (al of the above may be seen in working space or indicated on S&L) or Clear attempt to find UQ and LQ from list of values or in stem and leaf diagram A1 cao</p>

Q9.

	Working	Answer	Mark	Notes
	B at (3, -1), (5, -1), (5, -4) C at (-1, -1), (-3, -1), (-3, -4)	Rotation of 180° about (1,0)	3	M1 for showing C correctly on the grid without showing B or for showing B and C correctly on the grid A1 for rotation of 180° A1 for (centre) (1,0) OR M1 for showing C correctly on the grid without showing B or for showing B and C correctly on the grid A1 for enlargement scale factor -1 A1 for (centre) (1,0) NB Award no marks for any correct answer from an incorrect diagram and no A marks if more than one transformation is given

Q10.

	Working	Answer	Mark	Notes
			3	B3 for fully correct triangle (B2 for 2 vertices correct or enlargement scale factor 3 in wrong position or enlargement, centre A, with different scale factor) (B1 for 1 vertex correct or enlargement, not from A, different scale factor)

Q11.

PAPER: 5MB3F_01				
Question	Working	Answer	Mark	Notes
(a)		Triangle	2	B1 for triangle translated B1 for triangle at (-2,2),(-2,0),(-1,0)
(b)		Rotation 90° anticlockwise centre (0,0)	3	B1 Rotation B1 90° anticlockwise oe B1 centre (0,0) Note Award no marks if more than one transformation is given

Q12.

Question	Working	Answer	Mark	Notes
	Triangular ends $\frac{1}{2} \times 5 \times 12 = 30$ $\frac{1}{2} \times 5 \times 12 = 30$ Base $20 \times 5 = 100$ Vertical face $20 \times 12 = 240$ Slant face $20 \times 13 = 260$ Total area $= 30 + 30 + 100 + 240 + 260$ OR $(5 + 12 + 13) \times 20 + 2 \times \frac{1}{2} \times 5 \times 12$	660	3	M1 for $\frac{1}{2} \times 5 \times 12 (= 30)$ or $20 \times 5 (= 100)$ or $20 \times 12 (= 240)$ or $20 \times 13 (= 260)$ M1 (dep) for adding at least 3 areas found from correct methods (of no more than 5 faces) A1 cao OR M1 for $(5 + 12 + 13) \times 20$ or $\frac{1}{2} \times 5 \times 12 (= 30)$ M1 (dep) for adding " $(5 + 12 + 13) \times 20$ " to at least " $1 \times \frac{1}{2} \times 5 \times 12$ " A1 cao Note: Sight of $\frac{1}{2} \times 5 \times 12 \times 20$ or 600 (ie a volume calculation) scores no marks

Q13.

Question	Working	Answer	Mark	Notes
		30	3	M1 for $50 + 10 (= 60)$ or $50 \div 2 (= 25)$ M1 for correct order of operations $+ 10$ then $\div 2$ A1 cao

Q14.

5MB2H 01 November 2015				
Question	Working	Answer	Mark	Notes
		$4\frac{8}{35}$	3	M1 for converting both fractions to get a common denominator of a multiple of 35 with at least one correctly converted. M1 (dep on M1) for $3 + \frac{28}{35} + \frac{15}{35} (= 3\frac{43}{35})$ oe A1 for $4\frac{8}{35}$ cao

Q15.

PAPER: 1MA0 1F				
Question	Working	Answer	Mark	Notes
		38	5	M1 $3x - 5 = 19 - x$ M1 for a correct operation to collect the x terms or the number terms on one side of an equation of the form $ax+b=cx+d$ A1 for $x = 6$ M1 for substituting their value of x in the three expressions and adding or substituting their value of x after adding the three expressions A1 cao

Q16.

Question	Working	Answer	Mark	Notes
*	<p>S: $35 \div 100 \times 40 = 14$ W: $40 \div 8 \times 3 = 15$</p> <p>OR</p> <p>D: $16 \div 40 (\times 100)$ = 0.4 (40%) W: $3 \div 8 (\times 100)$ = 0.375 (37.5%)</p> <p>OR</p> <p>D: $\frac{16}{40} = \frac{80}{200}$ S: $\frac{35}{100} = \frac{70}{200}$ W: $\frac{3}{8} = \frac{75}{200}$</p>	Debbie and correct calculations	4	<p>Compares Marks out of 40 or fractions with denominator of 40 M1 for $35 \div 100 \times 40$ oe or 14 seen (or 14/40 seen) M1 for $40 \div 8 \times 3$ or 15 seen (or 15/40 seen) A1 for 14 and 15 or $\frac{14}{40}$ and $\frac{15}{40}$ C1 (dep on M1) for correct conclusion for their working QWC with 3 comparable marks: Decision and justification should be clear with working clearly presented and attributable.</p> <p>OR Decimals (or Percentages) M1 for $16 \div 40 (\times 100)$ oe or 0.4 (or 40) seen M1 for $3 \div 8 (\times 100)$ oe or 0.375 (or 37.5) seen A1 for 0.4 and 0.375 (or 40 and 37.5) C1 (dep on M1) for correct conclusion for their working QWC: with 3 comparable decimals (or percentages): Decision and justification should be clear with working clearly presented and attributable.</p> <p>OR Compares Fractions with denominator other than 40 M1 for attempt to convert all to fractions with a common denominator other than 40 M1 for at least 1 correct A1 for $\frac{80}{200}$ and $\frac{70}{200}$ and $\frac{75}{200}$ oe C1 (dep on M1) for correct conclusion for their working QWC with 3 comparable fractions: Decision and justification should be clear with working clearly presented and attributable.</p>

Q17.

Paper_5MB1H_01				
Question	Working	Answer	Mark	Notes
(a)		14	1	B1 cao
(b)		1.20	2	<p>M1 for attempt to find the gradient oe of the line eg drawing a right angled triangle with base & height shown, or $\frac{y_2 - y_1}{x_2 - x_1}$, values shown A1 for 1.20 (accept 1.2)</p>

Q18.

Question	Working	Answer	Mark	Notes
		230	2	<p>M1 for $180 + 50$ A1 cao</p> <p>OR M1 for $360 - (180 - 50)$ or $360 - 130$ A1 cao</p> <p>OR M1 for $50 + (90 - 50) + 90 + 50$ or $50 + 40 + 90 + 50$ A1 cao</p> <p>OR M1 for a suitable diagram (sketch) with bearing of lighthouse from ship indicated and 50° marked at lighthouse; diagram only intended to indicate position of 50°; ignore other labels and markings unless they create ambiguity. A1 cao</p>

Q19

5MB2F November 2016					
Question	Working	Answer	Mark	Notes	Type
(a)		9	1	B1 cao	C
(b)		12	1	B1 cao	C

Q20.

	Working	Answer	Mark	Notes
*		<p>Not enough mincemeat since $600 < 700$</p> <p>OR</p> <p>Only able to make 38 mince pies since insufficient mincemeat</p>	4	<p>M1 for $45 \div 18 (= 2.5)$ 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)</p> <p>OR</p> <p>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)</p>

Q21.

	Working	Answer	Mark	Notes
*		Scheme B gives most	4	<p>M1 for correct method to find 3% of 2500</p> <p>M1 for correct method to compare Scheme A and Scheme B for the same length of time</p> <p>A1 for correct answers for both schemes</p> <p>C1 f.t. (dep on a comparison for the same length of time) for Scheme B gives the most</p> <p>OR</p> <p>M1 for correct method to convert £5.35 into a % of 2500</p> <p>M1 for for correct method to compare Scheme A and Scheme B for the same length of time</p> <p>A1 for 2.5(68)(%)</p> <p>C1 f.t. (dep on a comparison for the same length of time) for Scheme B gives the most</p>

Q22.

	Working	Answer	Mark	Notes
	$20\,000 \times 0.85 = 17\,000$ $17\,000 \times 0.9 = 15\,300$ $15\,300 \times 0.9 = 13\,770$	3	4	<p>M1 for a complete correct method to find 15% of 20 000 (=3000) or 100-15 (=85)</p> <p>M1 for a complete correct method to find 85% of 20 000 e.g. 20 000 – '3000' (=17000) or 20 000 × '0.85' (=17000)</p> <p>M1 for a complete method to find 90% of '17 000'</p> <p>A1 cao but MUST be supported: 3 without working scores 0 marks and 3 from incorrect working may gain some method marks.</p>

Q23.

Question	Working	Answer	Mark	Notes
	$12x + 8y = 16$ $12x + 15y = 51$ $7y = 35$ $3x + 2 \times 5 = 6$ <p>Alternative method</p> $x = \frac{4-2y}{3}$ $4\left(\frac{4-2y}{3}\right) + 5y = 17$ $16 - 8y + 15y = 51$ $7y = 35$ $x = \frac{4-2 \times 5}{3}$	$x = -2$ $y = 5$	4	<p>M1 for a correct process to eliminate either x or y or leading to substitution (condone one arithmetic error)</p> <p>A1 for either $x = -2$ or $y = 5$</p> <p>M1 (dep) for correct substitution of their found value</p> <p>A1 cao</p> <p>SC If M0 scored B1 for $y = -2$ and $x = 5$</p>

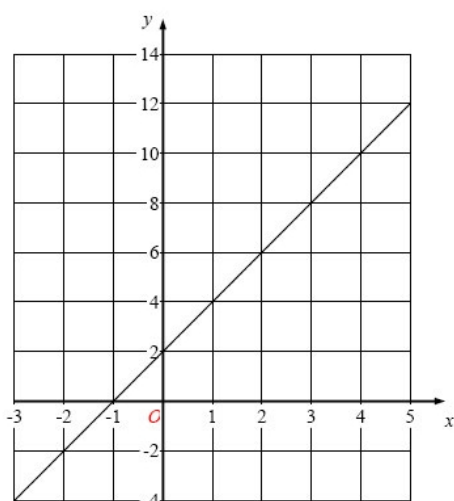
Q24.

Question	Working	Answer	Mark	Notes
	(S, L), (S, B), (S, C), (P, L), (P, B), (P, C)	List all 6 choices	2	B2 for all 6 with no extras or repeats (B1 for at least 3 correct)

Q25.

	Working	Answer	Mark	Notes																
(a)		<table><tr><td>x</td><td>-2</td><td>-1</td><td>0</td><td>1</td><td>2</td><td>3</td><td>4</td></tr><tr><td>y</td><td>-2</td><td>0</td><td>2</td><td>4</td><td>6</td><td>8</td><td>10</td></tr></table>	x	-2	-1	0	1	2	3	4	y	-2	0	2	4	6	8	10	2	B2 cao (B1 for any 2 correct values)
x	-2	-1	0	1	2	3	4													
y	-2	0	2	4	6	8	10													
(b)		Correct graph	2	B2 for a correct line through at least two correct points (B1 for correct points plotted ft their table if at least B1 earned in part a)																

b



Q26.

	Working	Answer	Mark	Notes
*	Ranges 50 and 46 IQR s 19 -21 and 19-21 Medians 47 and 44	Comparison of data	4	B1 Correct calculation of the median B1 Correct calculation of the ranges or the IQRs C1 for a correct comparison (ft) of medians C1 for a correct comparison of ranges or IQRs (ft) with interpretation or B1 Correct calculation of the median (47) B1 Correct calculation of the ranges or the IQRs C1 for a correct comparison of ranges or IQRs (ft) C1 for a correct comparison of medians (ft) with interpretation

Q27.

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

Q28.

5MB2H 01 November 2015				
Question	Working	Answer	Mark	Notes
		7.21 (am)	3	<p>M1 for listing multiples 9,18,27,36 and 12,24,36 (condone 1 arithmetic error) or method to find LCM</p> <p>M1 for identifying 36 as LCM</p> <p>A1 cao</p> <p>OR</p> <p>M1 for listing times 6.54, 7.03, 7.12, 7.21 or for listing times 6.57, 7.09, 7.21 (condone one arithmetic error)</p> <p>M1 for listing times 6.54, 7.03, 7.12, 7.21 and 6.57, 7.09, 7.21 (condone one arithmetic error)</p> <p>A1 cao</p>

Q29.

Working	Answer	Mark	Notes
	Points plotted at (5, 6), (15, 9), (25, 8), (35, 7), (45, 5) and joined with line segments	2	<p>B2 for correct plotting of 5 points and joining with line segments (B1 for points plotted correctly at midpoints of intervals OR joining points with line segments at the correct heights and consistent within the class interval (including end values) OR correct frequency polygon with one point incorrect OR correct frequency polygon with first and last points joined)</p> <p>NB Ignore any histogram drawn and any part of frequency polygon outside range of first and last points plotted</p>

Q30.

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

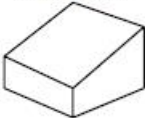
Q31.

Question	Working	Answer	Mark	Notes
(a)		6.4×10^8	1	B1 cao
(b)		5×10^2	2	<p>M1 for $3 \div 6 \times 10^{7-4}$ or 0.5×10^3 or 500 or 30 000 000 $\div 60$ 000</p> <p>A1 cao</p>

Q32.

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

Q33.

Question	Working	Answer	Mark	Notes
(a)		6 by 4 rectangle drawn	2	B2 for a 6 by 4 rectangle drawn (B1 for a rectangle drawn with one correct dimension)
(b)		3-D sketch 	2	M1 for an attempt at a 3-D sketch with a trapezoidal face A1 for a correct 3-D sketch

Q34.

Working	Answer	Mark	Notes
	144	3	M1 for exterior angle = $360 \div 5 (= 72)$ M1 (dep) for '72' + '72' or $2 \times '72'$ A1 cao OR M1 for interior angle = $3 \times 180/5 (= 108)$ M1 (dep) for $360 - 2 \times '108'$ A1 cao OR M1 for interior angle = $3 \times 180/5 (= 108)$ or exterior angle = $360 \div 5 (= 72)$ M1 (dep) for $180 - \left(\frac{3 \times 180}{5} - \frac{360}{5} \right)$ or $180 - ('108' - '72')$ A1 cao

Q35.

5MB1H_01				
Question	Working	Answer	Mark	Notes
(a)		$\frac{3}{7}, \frac{4}{7}, \frac{3}{7}, \frac{4}{7}, \frac{3}{7}$	2	B2 Fully correct tree (B1 $\frac{3}{7}$ on first branch)
(b)	$\frac{3}{7} \times \frac{3}{7}$	$\frac{9}{49}$	2	M1 ft for $\frac{3}{7} \times \frac{3}{7}$ provided $0 < \frac{3}{7} < 1$ A1 ft for $\frac{9}{49}$ oe

Q36,

Question	Working	Answer	Mark	Notes
(a)	$1 - (0.4 + 0.25 + 0.15)$ $1 - 0.8$	0.2	2	M1 for $1 - "(0.4 + 0.25 + 0.15)"$ or $1 - 0.8$ or sight of 0.92 A1 for 0.2 oe
(b)	0.4×60	24	2	M1 for 0.4×60 A1 for 24 or "24 out of 60" SC B1 for $\frac{24}{60}$ or 24 in 60