



Countdown to your final Maths exam ... Crossover part 2 (2020)

Markscheme & Examiners Report

Examiners Reports

- Q1. Very few incorrect answers here although 3800 was a common error.
- Q2. This conversion question had a variety of ways of approaching it but most students went down one of two routes: converting Paris and Geneva prices to pounds or converting the London price to both Euros and Swiss Francs. The former method generally led to three marks and the latter was either one or three marks depending on whether the student made the correct choice of London. The student who gained no marks did not know how to deal with the conversions correctly.
- Q3. This question was accessible to almost all students with the modal mark being 4 out of 6. Most students gained at least two marks on part (a). They were able to list the numbers correctly in the various sections of the Venn diagram but the common errors seen were a failure to use labels or to place the remaining numbers in the universal set correctly. Students who performed best wrote out all potential values and ticked them off to ensure all were included in the Venn diagram. Part (b) was generally well answered with most students able to follow through their Venn diagram correctly.
- Q4. A good proportion of students achieved the mark for rounding, but it is clear that a large number of students do not understand what rounding to decimal places means. Common errors included rounding or truncating to 2 decimal places and many moved the decimal point rather than rounding at all, or added three zeros to the end.
- Q5. Students generally made good attempts at part (a) with many achieving full marks. The main stumbling block to a successful outcome was an inability to use the exchange rate appropriately to deal with the two currencies. The majority of those that attempted a conversion chose to change from dollars into pounds, which was not surprising as the question asked for the answer to be given in pounds. A few changed £1500 into dollars and found the total cost in dollars before converting it into pounds. The majority of students gained the first two marks for finding the total cost of the hotel room (\$2744) and the total cost of the Wi-Fi (\$60). Those that realised they needed to divide by 1.90 to change dollars into pounds often did so at this stage. A common mistake was to add 2744, 60 and 1500 and divide the total by 1.90. Those who decided to deal with the currency conversion as the first step and changed \$196 and \$5 into pounds were more likely to have an answer affected by rounding errors. When attempting to change dollars into pounds a common mistake was to multiply by 1.90 and some students even multiplied by 0.90. In part (b) a few students thought that having fewer dollars to £1 would have no effect on the total cost of Andy's holiday. The majority of the students, however, were split between those who thought it would be cheaper and those who thought it would be more expensive. Success in this part did not appear to depend on the number of marks gained in part (a).
- Q6. Predictably a minority of students mixed up units, and used exchange rates incorrectly (usually by dividing instead of multiplying or vice versa). Of those who did so correctly, many then performed an incorrect subtraction, for example finding the difference between 2.90 euros and £2.50. Students who failed to provide the correct monetary units with their numerical answer lost the final mark.

- Q7. Many students scored 3 of the 4 marks in part (a) for correctly placing the eight numbers in sets A, B and C. Common mistakes included writing 20 and/or 8 in more than one region and writing three 8s in the intersection of all three sets. The outside region, $(A \cup B \cup C)'$, proved to be much more problematic. It was very common to see either no numbers at all in this region or duplicates of numbers that had already been placed inside the circles or all numbers listed. It should be emphasised to students that each number in the universal set should appear just once in a Venn diagram. In part (b) many students scored one mark for the correct denominator of 12 or for a denominator (usually 8) that followed through correctly from their Venn diagram. Common incorrect denominators were 25 and 11. A correct numerator was seen less frequently and it was evident that many students were unable to identify the region $A \cap B$.
- Q8. A sizeable number of students made no attempt at this question and it was rare to see a fully correct answer. However, many students were able to state at least one bound (either 4.755 or 4.765) and were rewarded with one mark out of the two marks available. Where inequality signs were used by students, and this was not very common, they were often used incorrectly.

MarkScheme.

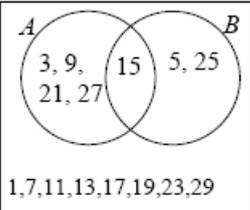
Q1.

Question	Working	Answer	Mark	Notes
		4000	B1	for 4000

Q2.

Question	Working	Answer	Mark	Notes
	$\pounds: 189 \div 1.39 = 135.97$ $174 \div 1.27 = 137.01$ SF: $115 \times 1.39 = 159.85$ $174 \div 1.27 \times 1.39 = 190.44$ $\text{€}: 115 \times 1.27 = 146.05$ $189 \div 1.39 \times 1.27 = 172.68$	London with correct comparable figures	3	M1 for method to convert one price to another currency, eg $189 \div 1.39$ M1 for a complete method leading to 3 prices in the same currency or to figures that can be used to compare the 3 prices A1 for London and correct comparable figures. (accept rounded or truncated to the nearest unit)

Q3.

Question	Working	Answer	Mark	Notes
(a)		Venn Diagram	B1 M1 M1 C1	for labels on diagram for just 15 in the intersection for just 5 and 25 in only set B or just 3, 9, 21 and 27 in only set A or just 1, 7, 11, 13, 17, 19, 23, 29 in $(A \cup B)'$ for all numbers correctly placed in the Venn Diagram Ignore all entries except the region you are marking for each method mark
(b)		$\frac{7}{15}$	P1 A1	ft for $\frac{"7"}{a}$ where $a \geq "7"$ or $\frac{b}{"15"}$ where $b \leq "15"$ ft $\frac{7}{15}$ oe

Q4.

Question	Working	Answer	Mark	Notes
		7.265	B1	cao

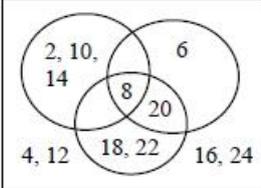
Q5.

Question	Working	Answer	Mark	Notes
(a)	\$	£	2975.79	P1 for process to find total room cost eg $196 \times 14 (= 2744)$
	5	2.631...		P1 for process to find total wifi cost eg $5 \times 12 (= 60)$
	60	31.578...		P1 for using exchange rate appropriately (could be used earlier in the question),
	196	103.157...		eg “2804” $\div 1.90 (= (\pounds)1475.789\dots)$ or $1500 \times 1.90 (= (\pounds)2850)$
	2744	1444.21...		P1 for process to find the total cost in £, eg “1475.79(…)” + 1500
	2804	1475.789...		or in \$, eg “2850” + “2804” (= 5654)
(b)		Statement	A1 2975 to 2976 C1	Statement about the total price rising May comment that flights will not change but the rest will rise

Q6.

PAPER: 1MA0_2H				
Question	Working	Answer	Mark	Notes
		2.10 euros or £1.81	3	M1 for $2.5 \times 1.16 (= 2.9)$ M1 (dep) for $5 - “2.9” (= 2.1)$ A1 for 2.1(0) euros OR M1 for $5 \div 1.16 (= 4.31\dots)$ M1 (dep) for “4.31” $- 2.50 (= 1.81)$ A1 for £1.81

Q7.

Question	Answer	Mark	Mark scheme	Additional guidance
(a)	Venn diagram	C4	fully correct Venn diagram	
		(C3)	7 of the 8 regions correct or for a diagram with only one number incorrectly placed)	
		(C2)	5 or 6 of the 8 regions correct)	
		(C1)	3 or 4 of the 8 regions correct)	
(b)	$\frac{1}{12}$	M1	ft for identification of 1 or 12 eg from the diagram	Need not be written as a fraction or probability at this stage. eg could be a ratio 1:12 Acceptable equivalents are (eg, could ft) any fraction equivalent to $\frac{1}{12}$, 0.08(33..) or 8(.33..)%
		A1	ft oe	

Q8.

Question	Working	Answer	Mark	Notes
		$4.755 \leq n < 4.765$	B2	for $4.755 \leq n < 4.765$
			[B1]	for 4.755 or 4.765 or 4.7649]