Countdown to your final Maths exam …
Higher Tier only … Part 1 (2020)
Integers, Four Operations and Product Rule
Examiners Reports & Markscheme

Examiners Reports

Q1. Since it was rare to see any working shown it was not always clear how an answer had been arrived at. Parts (a) and (c) were best answered, but there were many wrong answers to part (b), particularly 0.37 or 3.7

Q2. Many students did not read or fully comprehend the information given in this question. Some read 150 grams as the weight of a half of the hosepipe, many multiplied 20 by a half instead of dividing. A significant number forgot to add on the weight of the reel and left an answer of 6000g or 6kg. Some students did make mistakes in the addition of the 1.4, suggesting perhaps that a number did not have a calculator. Some students wrote their final answer as 7400kg and failed to gain full marks.

Q3. Part (a) was found to be straightforward by the majority of the entry. Of the rest, there were some who first found a common denominator and then tried to multiply numerators together and denominators together, which, if correct, would gain the one mark available. More often the 'common' denominator was left as that and the numerators multiplied together. There were many cases of 2 × 1 = 3

In part (b) candidates were expected to find a suitable common denominator (invariably 15 for those who knew what to do). There were a surprising number of candidates who subtracted numerators and denominators to get, for example, ⅔ or who found the correct common denominator but did not change the numerators. A small number of candidates added instead of subtracted – they lost the accuracy mark.

Q4. In part (a) the majority of students were able to convert at least one of the given fractions to an improper fraction. Some students confused techniques for other operations at this point and tried to express the fractions with a common denominator. Those that were successful in achieving the correct multiplication were often unable to convert back to a mixed fraction in its simplest form. The most common answers were $\frac{42}{15}$, $\frac{14}{5}$ or $\frac{212}{15}$

In part (b) students generally scored full marks or no marks. Many who converted to improper fractions were unable to convert these to fractions with the same common denominator. Often they found the common denominator but failed to find the correct numerator. Very few subtracted the whole numbers and then dealt with the fractions. There appears to be widespread misunderstanding of the processes involved.

Q5. Students found more success with this question, the main inhibitor being a failure to write down all the steps and working needed to "show that" 1335 was the resulting number. There were some 2-way tables used, but students did not know what to do with such a diagram, once complete.

Q6. This question targeted a new area of the specification and it was pleasing to see the majority of students scored at least one mark on this question.Many students obtained one mark for 215 ÷ 17 = 12.647.. and some went on to correctly indicate that it is not possible to have 0.647.. of a rose tree or that the answer was not an integer when an integer would be required. An alternative method seen was to show 12 × 17 (= 204) and 13 × 17 (= 221) and an explanation that there could not be a number of trees between 12 and 13.

The main errors seen in this question, were to show a correct calculation with no interpretation scoring one mark, or to show 17 × 17 = 289, which has no meaning in this question or to give a vague reason e.g. '215 can't be divided by 17' the latter two do not score any marks.

Q7. This was successfully completed by most candidates. For the rest the first problem was to decide the number of packages and parcels; those misinterpreting the ratio frequently gave incorrect answers of

30 and 10. A significant number spoilt their work by finding 32×25.6.

Q8. Most candidates realised that they were expected to display suitable working out and declare their answer in a clear form. The vast majority of candidates proceeded by working out the area of the L shaped field. This was generally done successfully by dividing the shape into 2 parts, calculating those areas and summing them. Area by subtraction was very rare. Thankfully there were few perimeters found on this paper. However, a common error was to ignore the overlap between the 16 by 6 and the 10 by 7 rectangles so getting an area of 166 m². Once the area had been found, most candidates demonstrated in some form that they had to find how many times 36 goes into 124. This was sometimes done by division, but often by counting up in 36s until 108 was reached. Some candidates displayed their lack of arithmetical skills by failing to do this accurately – for example 36, 62, 98. Candidates who tried to draw out areas of 36m² on the diagram were rarely successful.

Q9. In part (a), the correct answer of 3.202...... was the modal answer but this was often followed by incorrect rounding to 3 sig. figs (3.202 or 3.2 being the most common errors). Failure to get the correct answer in (i) was usually either a result of attempting to find the square root of 5.357..../1.673 or an attempt to do the complete calculation in one go using a calculator. An incorrect answer in (i) was often followed by correct rounding in (ii) although many still gave their answer correct to 3 decimal places by mistake. In part (b), the correct answer was seen more than not. Some gave a correct answer but not in standard form.

Q10. This question was well attempted by most candidates with the majority scoring full marks. Most candidates chose to calculate 35% of 200 and ⅕ of 200 rather than converting 35% to a fraction or ⅕ to a percentage. The most common repeated error was to calculate 35% of 200, subtract this from 200 and then do ⅕ of 130. More candidates made errors calculating ⅕ of 200 than 35% of 200 usually because they incorrectly converted ⅕ to 5%, 50% or other. Another common error was to leave the answer as 9⁄20 or 45%. Computational errors were frequently seen.

Mark Scheme

Q1.

Question		Working	Answer	Mark	Notes
	(a)		370	1	B1 cao
	(b)		0.37	1	B1 cao
	(c)		17.02	1	B1 cao

Q2.

Question	Working	Answer	Mark	Notes
		7.4	3	M1 for a correct method to find the weight of 1 metre of hosepipe, eg. (1 ÷ 0.5) × 150 (= 300) M1 (dep) for a correct method to find the weight of the hosepipe alone, eg. "300" × 20 (= 6000) A1 for 7.4 (accept 7400 g)

Q3.

PAPER: 1MA0_1H					
Question		Working	Answer	Mark	Notes
	(a)		$\frac{2}{21}$	1	B1 for $\frac{2}{21}$
	(b)		$\frac{4}{15}$	2	M1 for attempting to use a suitable common denominator with at least one of the two fractions correct A1 for $\frac{4}{15}$ oe

Q4.

Question	Working	Answer	Mark	Notes
(a)		$2\frac{4}{5}$	3	M1 for writing as improper fractions eg $\frac{6}{5}$ or $\frac{7}{3}$ M1 (dep) for multiplying improper fractions eg $\frac{6\times7}{5\times3}$ or $\frac{14}{5}$ oe A1 cao
(b)		$\frac{4}{5}$	3	M1 for finding two correct fractions with a common denominator eg $\frac{7}{15}-\frac{10}{15}$ or $\frac{21-30}{45}$ M1 (dep) for complete and correct method eg $1-\frac{3}{15}$ or $\frac{37}{15}-\frac{25}{15}$ or $\frac{111-75}{45}$ oe A1 for $\frac{4}{5}$ oe

Q5.

Question	Answer	Mark	Mark scheme	Additional guidance
	1335	M1	for one correct procedure eg 9×15 (=135) or 15×8 (=120) or $9 \times 15 \times 8$ (=1080)	Ignore additional products.
		M1	for all three correct products eg "135", "120", "1080" or 9×15, 15×8, $9 \times 15 \times 8$ oe	Only these three products must be identified. There is no need to indicate summing at this stage.
		C1	for showing the three correct products added eg 135 + 120 + 1080	There is no need to show the three products sum to 1335

Q6.

Question	Working	Answer	Mark	Notes
		No (supported)	P1 C1	Process to find number of rose trees e.g. $215 \div 17$ (=12.647...) or show number of choices with 12 and 13 eg $17 \times 12 = 204$ and $17 \times 13 = 221$ No with interpretation that 12.6.. is not a whole number or a whole number of plants must be bought or number of plants would have to be between 12 and 13 which is not possible

Q7.

Question	Working	Answer	Mark	Notes
	$40 \div 5 = 8$ $8 \times 1.5 = 12$ $(37.6-12)\div(40-8)$ $= 25.6\div32 =$	0.8	4	M1 for $40 \div 5$ (=8) or at least 3 multiples of 1:4 M1 "8" $\times$ 1.5 (=12) M1 (37.6 – "12") $\div$ (40 – "8") or $25.6 \div 32$ A1 for 0.8, accept 800 g OR algebraic approach: M1 for (eg) k=4c and k+c=40 M1 for (eg) 1.5c+wk=37.6 M1 for "8"×1.5 + "32"×w = 37.6 A1 for 0.8, accept 800 g

Q8.

PAPER: 1MA0_1H

Question	Working	Answer	Mark	Notes
*		3	4	M1 for a method to calculate at least one area eg 10 × 7 (=70) or 16 × 10 (=160) M1 for a method to find the total area (=124) M1 (dep on M1) for "124" ÷ 36 C1 (dep on M3) for 3 (pigs) clearly identified and supported by correct calculations Or M1 for an area of 36m² drawn with dimensions shown M1 for 3 areas of 36m² drawn with dimensions shown M1 (dep on M1) for method to find the area left (=16) C1 (dep on M3) for 3 (pigs) clearly identified and supported by correct calculations

Q9.

PAPER: 5MB3H_01

Question	Working	Answer	Mark	Notes
(a)(i)		3.202(17....)	3	B2 for for 3.202(17.....) (B1 for 5.357 .. or 1.673... seen)
(a)(ii)		3.20		B1 for 3.20 or ft from "(a)" [Note: 3.2 only gets B0]
(b)		1.17×10^{10}	2	M1 for $2.34 \times 5 \times 10^{(5+4)}$ or $11.7 \times 10^{(5+4)}$ or 234000×50000 (= 11700000000) A1 for 1.17×10^{10}

Q10.

		Working	Answer	Mark	Notes
			90	4	M1 for 200 ÷ 5 (=40) M1 for correct method to find 35% of 200 (=70) M1 (dep on M1) for 200 − "40" − "70" A1 cao OR M1 for 35(%) + 20(%) (=55%) M1 for a correct method to find "55%" of 200 (=110) or 100(%) − 55% (=45%) M1 (dep on M1) for 200 − "110" or a correct method to find "45%" of 200 A1 cao OR M1 for correct fractions with common denominator $\frac{35}{100} + \frac{20}{100}$ oe M1 for a correct method to find "$\frac{55}{100}$" oe of 200 (=110) or 1−"$\frac{55}{100}$"= "$\frac{45}{100}$" oe M1 (dep on M1) for 200−"110" or a correct method to find "$\frac{45}{100}$" oe of 200 A1 cao