AQA

GCSE

Mathematics

8300/3F Paper 3 Foundation

Report on the Examination

Specification 8300

November 2017

Version: 1.0

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General

The majority of students found the paper accessible and attempted most of the questions. The work was generally well presented with working shown on most scripts. Arithmetic errors caused problems for some students who had otherwise engaged with a question and did not to use a calculator. Some students did not show the working from their calculator.

Topics that were well done included:

- systematic listing
- probability
- scale drawing
- inequality notation
- describing a distribution.

Topics which students found difficult included:

- proportion
- area of a triangle
- algebraic manipulation
- evaluating algebraic expressions
- surface area of a cube
- simple interest calculations
- fraction problem solving
- sets problem
- speed distance time, converting decimal time to hours and minutes
- angle problem
- problem solving with squares and integer powers
- reverse percentage
- changing the subject of a formulae
- expanding double brackets and simplifying.

Question 1

This question was well answered.

Question 2

This question was well answered.

Question 3

This question was well answered.

Question 4

This question was reasonably well answered.

Question 5

This question was not very well answered. Of those who had success, many started by dividing 1.70 by 2.5 and then multiplying by 3.25 for the correct answer. The most common incorrect solution was to halve 1.70 and then add 0.85 to 1.70 with the misconception that 2.5 plus 1.25 is equivalent to 3.25.

Question 6
In part (a) the large majority of students correctly listed eight correct combinations. A common error was to list BHC or RHC as a combination. Other students repeated combinations or only listed three extra combinations for bread without any using a roll. Part (b) was very well answered.

Question 7
In part (a) the question was not answered well with most students correctly plotting points *A* and *B*, but not acknowledging that *ABC* had to be a right-angled triangle and plotting *C* at (0,4). Part (b) was also not very well answered with common incorrect answers of 24 and calculations of the perimeter.

Question 8
Part (a) was reasonably well answered. Many students omitted q from the output box or incorrectly stated 7 or +7 or +2 and ÷7 from an incorrect attempt to solve with a reverse operation. Part (b) was very poorly answered with common incorrect answers of $x + 5 \times 3$ or $x + 15$ or $3x + 5$

Question 9
This question was an excellent discriminator of the more able students. The large majority used the information to calculate that an extra 50 eggs needed to be boxed, but some misunderstood that 4 more boxes were required and obtained an incorrect solution through trial and error.

Question 10
This question was reasonably well answered. A common incorrect answer was to choose examples with consecutive multiples of 10 or multiples of 10 that were also multiples of 3, with an incorrect answer 'yes'.

Question 11
This question was very well answered. Most students read the information and applied the probability conditions correctly starting with A in two sections. The most common incorrect answers showed A in only one section or left sections blank.

Question 12
In part (a) some students incorrectly gave an algebraic answer from expanding the bracket. Part (b) was not very well answered with common incorrect answers of an algebraic answer from factorising. Part (c) had common incorrect answers of 5 and a significant number of non-attempts.

Question 13
Some students calculated $0.9 \times 0.9 = 0.81$ and $6 \times 0.81 = 4.86$, but were then unable to convert 4.86 m^2 into cm^2. The majority of fully correct solutions started with a conversion into 90 cm followed by a calculation of the total surface area.

Question 14
A significant number of students incorrectly worked out compound interest but correctly calculated 1700×1.04 or 1700×0.04. A common error was to calculate £204 and add it to £1700 to give an answer of £1904. Some students incorrectly stated that 4% was 0.4 and calculated 1700 x 1.4. Build up methods were rarely correct.

Question 15
Part (a) was very well answered. A common error was to incorrectly measure the length between *P* and *Q*. Part (b) was very well answered. A common error was incorrectly positioning *R* due South or an incorrect calculation of the scale drawing length *PR*.

Question 16
This question was an excellent discriminator of the more able students. The very large majority correctly calculated the number of passengers in first or standard class. A common error was to convert fractions to decimals or percentages and not obtain exact values for the number of passengers. Another common error was using only one standard carriage. Some students correctly calculated 276 passengers and 532 seats in total and the correct conclusion but did not make a direct comparison such as 276 and 266 with 'Yes'.

Question 17
This question was reasonably well answered.

Question 18
This question was well answered.

Question 19
This question was reasonably well answered and again proved an excellent discriminator. The majority of students made a correct statement about proportion and average. A common error was to make a correct statement in the wrong section or to restate the values given in the question.

Question 20
This question was not very well answered. Very few students used an algebraic or trial and improvement method. Very few students used an unknown value of x in the intersecting section of singles and doubles and built up an equation to solve. Those who did were generally successful.

Question 21
Part (a) was not very well answered. A common error was the incorrect conversion of decimal time to hours and minutes, commonly 2.8 hours was indicated as 2 hours and 80 minutes or 2 hours and 8 minutes. Part (b) was well answered. A common error was to not specifically refer to the arrival time and state "take longer" inferring longer journey time rather than "later arrival time".

Question 22
Most students correctly indicated angle *BAP* as 51º or angle *APC* as 129º but were unable to proceed further. A common error was to show angle *ABP* and angle *BAP* as 78º. Values of 51 and 78 were commonly shown in working without labelling and were not marked on the diagram.

Question 23
This question proved very difficult and had a significant number of non-attempts. Although many students listed square numbers, a common error was listing cubes numbers instead of powers of 3.

Question 24
This question was poorly answered.

Question 25
This question was reasonably well answered.

Question 26
Part (a) was reasonably well answered. The majority of students were able to correctly place 80, 44 and 36 but a common error was to divide 36 by 3 instead of 4 to calculate the number of men and women without vouchers, some students placed 9 and 27 incorrectly. In part (b) few students knew the method for reverse percentages. Some candidates used trial and error to answer £32.

The most common errors were to add on 15% by calculating 1.15 × 27.20 or subtract 15% by calculating 0.85 × 27.20

Question 27

Common errors were incorrect algebraic manipulation and for students to simply swap letters in the formula with t as subject, with an answer $t = u + av$. In part (b) many students did not know what was required.

Question 28

Very few correct solutions were seen. Common incorrect answers were $x^2 + 64$ or $x^2 – 64$. Some candidates successfully used grid multiplication with four terms simplified for a correct solution.

Use of statistics

Statistics used in this report may be taken from incomplete processing data. However, this data still gives a true account on how students have performed for each question.

Mark Ranges and Award of Grades

Grade boundaries and cumulative percentage grades are available on the Results Statistics page of the AQA Website.