Transcript for recorded event

Course title: Pearson Edexcel Mathematics in Context (Level 3 Core Maths) 7MC0: Feedback on summer 2017

Event code: 17PAM19

Slide no.	Purpose of slide	Additional information
Slide 1		Welcome to the Edexcel Mathematics in Context 7MC0 feedback session for summer 2017
Slide 2	Aims and objectives	During this session you will - Receive feedback on national performance of candidates in the summer 2017 examination series for Paper 1 and Paper 2. -Consider the variation of candidates' performance on different questions and possible reasons why. - Look at the Examiners' Report. - Address common issues and FAQs.
Slide 3	Student responses	First a guide to the slides. Text in blue corresponds to extracts from the principal examiner's report Text in black corresponds to comments on the student response on the slide Text is red corresponds to the mean mark for the question or question part. In addition, many of the responses shown have the marks they were given.
Slide 4	Paper 1	We will begin with Paper 1
Slide 5	Student response – candidates who didn't do well Paper 1 Q1	Question 1 tested the ability to complete a box plot and to interpret a pair of box plots in context. The first task was to find the median, the quartiles and the outliers. The Principal Examiner (PE) wrote 'Students found it more difficult to work with the outliers even though the formula was given.' This is shown here where the student could not get started on the outliers.
Slide 6	Student response – candidates who didn't do well Paper Q1	Still on question 1, the PE writes, 'Some calculated the boundaries for the outliers but just ignored them' In this case the student has not realised that they had to find upper and lower limits for a value to be classed as an outlier

Slide 7	Student response – candidates who did do well Paper 1 Q1	Not all students did badly. In this case the candidate gets all 6 marks. The PE comments 'This would be one area in which centres could help students to improve for future series.' In particular making sure students know how to calculate and subsequently plot outliers.
Slide 8	Student response – Candidates who did well Paper 1 Q1b	In part (b) of question 1 students were expected to use the answers to their calculations in part (a) to compare the two data sets. The PE writes, 'Students should try to compare the median and the spread of the data in context.' In this case the student does compare the medians and the interquartile range, but does not draw any conclusion from them. However, the student is aware the data is about **production**; many talked about energy **used**.
Slide 9	Student response – Candidates who did well Paper 1 Q1c	Part (c) required students to abstract data and make a suitable percentage calculation. The slide shows a good answer by someone who can work accurately with percentages
Slide 10	Student response – Candidates who did well Paper 1 Q2bc	Question 2 tested the ability to calculate a moving average and to use moving averages to make a prediction. Part (a) was well done, and many students were able to answer parts (b) and (c). In part (c) the PE writes 'The main method seen was to extend a line of best fit..' This generally worked well.
Slide 11	Student response – Candidates who didn't do well Paper 1 Q2bc	However, not all students followed this method. The PE writes 'Alternative methods such as finding the average increase or a pattern in multipliers were usually less successful.' In this particular response, the mathematics is to be commended but the student needed to realise that basing the model on just the latest pair of moving averages is not fully sound
Slide 12	Student response – Candidates who didn't do well Paper 1 Q2d	In part (d) the PE writes 'Many students correctly described the need to extrapolate' and the intrinsic problem that has. The PE also wrote 'Others chose to not to refer to the data and the times but seem to list a variety of influences not relevant to the question.' Such is the case with the 3 responses shown here.
Slide 13	Student response – Candidates who did well Paper 1 Q3a	Question 3a required students to use (large) numbers from a data source and calculate when oil reserves would run out. This slide shows a good response – note that standard form was not required

Slide 14	Student response – Candidates who didn't do well Paper 1 Q3a	However, students often found it difficult to reach the correct answer. The PE writes 'students found it more difficult to combine all the elements of this question.' In the response shown the candidate notices that reserves are in thousands of millions but forgets that the consumption is per day
Slide 15	Student response – Candidates who didn't do well Paper 1 Q3d	On question 3d, candidates were expected to find the sum of the geometric series that was used to model oil consumption. The PE writes 'The use of the rule to sum the figures was rarely seen; lists of figures and addition was the preferred method shown.' This candidate, like others, has worked out all the terms but not found the total.
Slide 16	Student response – Candidates who didn't do well Paper 1 Q4b	Question 4 tested whether students could select data from a source and use it to carry out calculations to make a comparison. The PE writes 'One of the main errors seen was to ignore all units given and compare a figure in dollars with a figure in cents as if they were the same unit.' This happened in this response where a figure given in dollars should have been in cents before converting to dollars.
Slide 17	Student response – Candidates who did do well Paper 1 Q5b	Similarly question 5 also required students to select data and then work out an estimate for the change in income. The PE writes, 'many students chose not to estimate at any point in this question and gave a fully accurate answer: as long as this was correct full marks were awarded.' This student response gets full marks – the percentage decrease was not required by the question, but the change was shown and stated to be a decrease.
Slide 18	Student response – Candidates who didn't do well Paper 1 Q6b	Question 6 required students to find both Pearson and Spearman correlation coefficients and then interpret. The PE writes, 'Accuracy was sometimes a problem in part (a) and again in finding the sum of the differences in ranking for part (b). This slide shows one incorrect response. This student has given the rank of '3' to two different values …….. not noticing that the highest rank in price was different from the highest rank in rating.
Slide 19	Student response – Candidates who didn't do well Paper 1 Q6c	On part (c) candidates were expected to interpret the correlation coefficients they had found. The PE writes, 'Two correct, sensible and different statements were required.' The top response is weak because it does not mention 'positive' and does not address the context.

		The bottom response is better but there is not enough in this statement for both marks. For example a comparison could be made between the AMD figures and the INTEL figures
Slide 20	Student response – Candidates who did do well Paper 1 Q7	Question 7 tested knowledge of expected values. Although many fully correct answers were seen, the mean mark was less than 50% as many students could not get started. This good response shows clear calculations and a conclusion.
Slide 21	Student response – Candidates who didn't do well Paper 1 Q7	The PE writes,' but the modal response was to begin to use the probability and figures given but not really use them effectively.' For example, this student does not show any summation of the values.
Slide 22	Paper 2	That ends the extracts from Paper 1. Now to look at Paper 2.
Slide 23	Student response – Candidates who didn't do well Paper 2 Q1b	Question 1 required students to work out and compare percentage price increases. The PE writes, 'A number of students calculated one year's payment as a percentage of the other…. and this scored no marks.' The response shows this error. But at least this student attempts to interpret the calculations.
Slide 24	Student response – Candidates who didn't do well Paper 2 Q1b	Here is a second example of the same thing and this time there is no attempt to interpret the answers. All that was required was a simple comparison.
Slide 25	Student response – Candidates who didn't do well Paper 2 Q2	Question 2 required students to calculate means and standard deviations of costs of electricity from different providers and to make comparisons. This response shows a lack of exam technique as no working is shown. The standard deviation is incorrect; had the method been shown it may have been possible to award a method mark. The student's interpretation of the means is good, but less so for the standard deviations.
Slide 26	Student response – Candidates who did well Paper 2 Q2	On this response the interpretations are better.
Slide 27	Student response – Candidates who didn't do well Paper 2 Q3a	Question 3(a) should have been a simple calculation and indeed candidates tended to do well. However, the lack of attention to detail that was raised earlier in the session also showed up here. In this case the £20 seems to have been converted to 200 pence.
Slide 28	Student response – Candidates who didn't do well Paper 2 Q3a	Similarly, in this case 4.85 pence has been converted to 0.485 pounds.

Slide 29	Student response – Candidates who didn't do well Paper 2 Q3b	…and another case from part (b) of the same question. The answer shown probably comes from 8500 divided by 0.0485. The candidate has not read the definition of the variable G carefully enough.
Slide 30	Student response – Candidates who didn't do well Paper 2 Q4a	For question 4 the PE writes, 'A significant number of students did not understand the requirements of the question.' For part (a), for example, many students compared half the totals for each field type rather than weather type. In the response shown, two of the calculations are correct but the candidate is unable to interpret what the answers mean.
Slide 31	Student response – Candidates who didn't do well Paper 2 Q4b	Things were even worse in part (b). Comments from the PE include: • Very few students scored well • Few were able to explain why $x + y = 1$ • Only a few could formulate the correct equation, with many stating incorrectly that $x + y = 24$ The response shown illustrates these points. Students who set up the second equation in this way found that the marks for part (iii) were inaccessible.
Slide 32	Student response – Candidates who didn't do well Paper 2 Q5b	Question 5 required students to perform a relatively simple calculation. Part (a) was well answered but the mean mark for part (b) was lower than expected. The PE writes, 'Errors included Using the total yield rather than the amount fit to sell…..' and 'misreading that the costs were per acre but the data previously given related to half an acre.' In addition, there were some careless errors in the calculations.
Slide 33	Student response – Candidates who didn't do well Paper 2 Q6	In question 6 students had to produce a cumulative frequency diagram from data and use it to find an estimate for the median. Although generally well done, this response lost marks because a proper graph was not drawn.
Slide 34	Student response – Candidates who did well Paper 2 Q7	Question 7 and 8 tested knowledge of probability. On question 7 students had to interpret probabilities from a Venn diagram. The PE writes 'In (ii) many quoted theoretical reasons why the probability of A intersection B was equal to zero.' The responses shown here were acceptable responses as they interpreted the situation correctly or the diagram correctly.
Slide 35	Student response – Candidates who didn't do well Paper 2 Q8a	Question 8 was found to be challenging – with part (a) being tackled better than part (b). The PE writes,' Those who scored marks were able to use proportionality to find the total proportion of defective items ….. But only a small number continued their calculations correctly, if at all.' In the top response, the student has not divided by the sum of 10, 5 and 15 to find the probability.

		In the bottom response, the conversion to a probability is wrong.
Slide 36	Student response – Candidates who didn't do well Paper 2 Q8b	For part (b) the PE writes 'Only a handful scored full marks. The majority calculated the expected number of defectives …….'. The response shown exemplifies this.
Slide 37	Student response – Candidates who didn't do well Paper 2 Q9a	In question 9, students had to set up and solve a linear optimisation problem. For part (a), the PE writes 'Most students could use the information to formulate at least one constraint.' However, the responses shown have errors. The one on the right ignored the constraint of x being between 70 and 130 and the statement 'y greater than or equal to x' on line 3 is incorrect. The response on the left starts well, but then makes a common error on line 3. Thereafter the response goes badly astray when the student feels the need to 'combine inequalities'
Slide 38	Student response – Candidates who didn't do well Paper 2 Q10	Question 10 was a standard question about the mean of data in a grouped frequency table. The responses earned a mean mark of 1.7 out of 4. The PE writes, 'There were a small number of students ….. who found an estimate of the median.' The response shown here is sophisticated but sadly gets 0 marks as the student has found the median
Slide 39	Student response – Candidates who didn't do well Paper 2 Q11	Question 11 tested the use of regression in context. Part (a) was generally well done. For part (b), the PE writes. 'Very few students could explain clearly why age was the explanatory variable.' Here are four responses. Ask yourself whether any are satisfactory. The examiners didn't, so all were awarded no marks.
Slide 40	Student response – Candidates who did well Paper 2 Q11c	Here are two good responses to part (c). The upper one shows a clear method. The lower one is also correct but the risk is that an inaccurate answer from one slip would lose the marks
Slide 41	Student response – Candidates who did do well Paper 2 Q11d	For part (d), the PE writes 'Few students made appropriate comments regarding reliability.' The upper response does find the expected earnings but has no comments. The lower response shows correct use of the regression lines and a point is made by comparing the model with the data but it does not address the issue over the reliability of the figures for 30-year olds

Slide 42	Student response – Candidates who did do well Paper 2 Q11e	Very few students attempted part (e). Two responses are shown. In the upper the answer does show an understanding of gradient but a comment that the gradient of the line for men is greater than that for women, so the men's weekly wage is rising faster is also needed. In the lower response, the question is not even addressed.
Slide 43	Why candidates did well – Summary	In conclusion, here are some of the characteristics of successful candidates. The most successful candidates • were able to apply the mathematics they knew • were able to interpret their solutions in the context of the question • were familiar with the source material for Paper 1 • took care in using data accurately abstracted from charts and tables.
Slide 44	Marking activity	You can, if you wish, access an accompanying marking activity.
Slide 45	Marking activity	There are 5 responses to question 3d Paper 1 for you to mark. Use the accompanying mark scheme.
Slide 46	Marking activity – Answers	Marks are available in the accompanying file.
Slide 47	Common issues	There were two common issues which teaching colleagues need to be aware of: 1. Many students were very careless when reading from tables – this included overlooking units 2. Many students found it difficult to interpret their answers in the context of the question.
Slide 48	Considering delivery strategies and sharing best practice	Considering Delivery Strategies and sharing best practice
Slide 49	Support	For support Past papers and examiner reports are available on the Edexcel Emporium. Contact Graham Cumming at TeachingMaths@pearson.com in the first instance. Other information is available as shown.
Slide 50	Pearson paid-for published resources	There are several resources that can be used to support the course. Just search online. Pearson paid for published resources can be found at the sites shown.
Slide 51	Other useful links	Other useful links are as shown.

Slide 52	Thank you for taking part in this pre-recorded training	Lastly thank you for taking part in this pre-recorded training.