



Pearson

Mark Scheme (Results)

Summer 2017

Pearson Edexcel Mathematics in Context
Level 3 Core Maths (7MC0/01) Paper 01

Edexcel and BTEC Qualifications

Edexcel and BTEC qualifications are awarded by Pearson, the UK's largest awarding body. We provide a wide range of qualifications including academic, vocational, occupational and specific programmes for employers. For further information visit our qualifications websites at www.edexcel.com or www.btec.co.uk. Alternatively, you can get in touch with us using the details on our contact us page at www.edexcel.com/contactus.

Pearson: helping people progress, everywhere

Pearson aspires to be the world's leading learning company. Our aim is to help everyone progress in their lives through education. We believe in every kind of learning, for all kinds of people, wherever they are in the world. We've been involved in education for over 150 years, and by working across 70 countries, in 100 languages, we have built an international reputation for our commitment to high standards and raising achievement through innovation in education. Find out more about how we can help you and your students at: www.pearson.com/uk

Summer 2017

Publications Code 7MC0_01_1706_MS

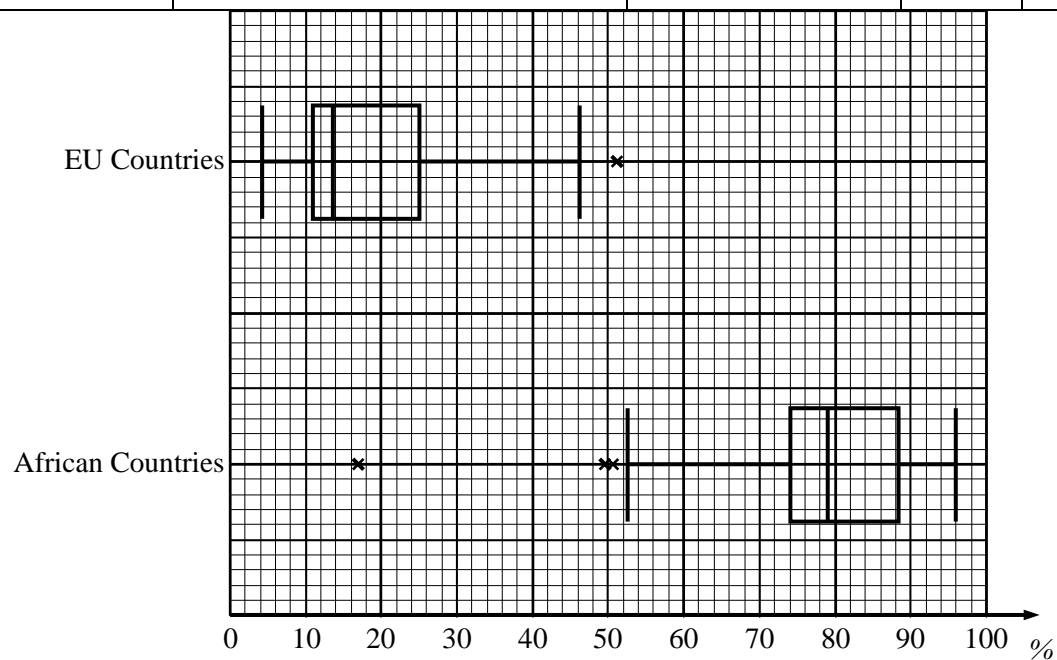
All the material in this publication is copyright

© Pearson Education Ltd 2017

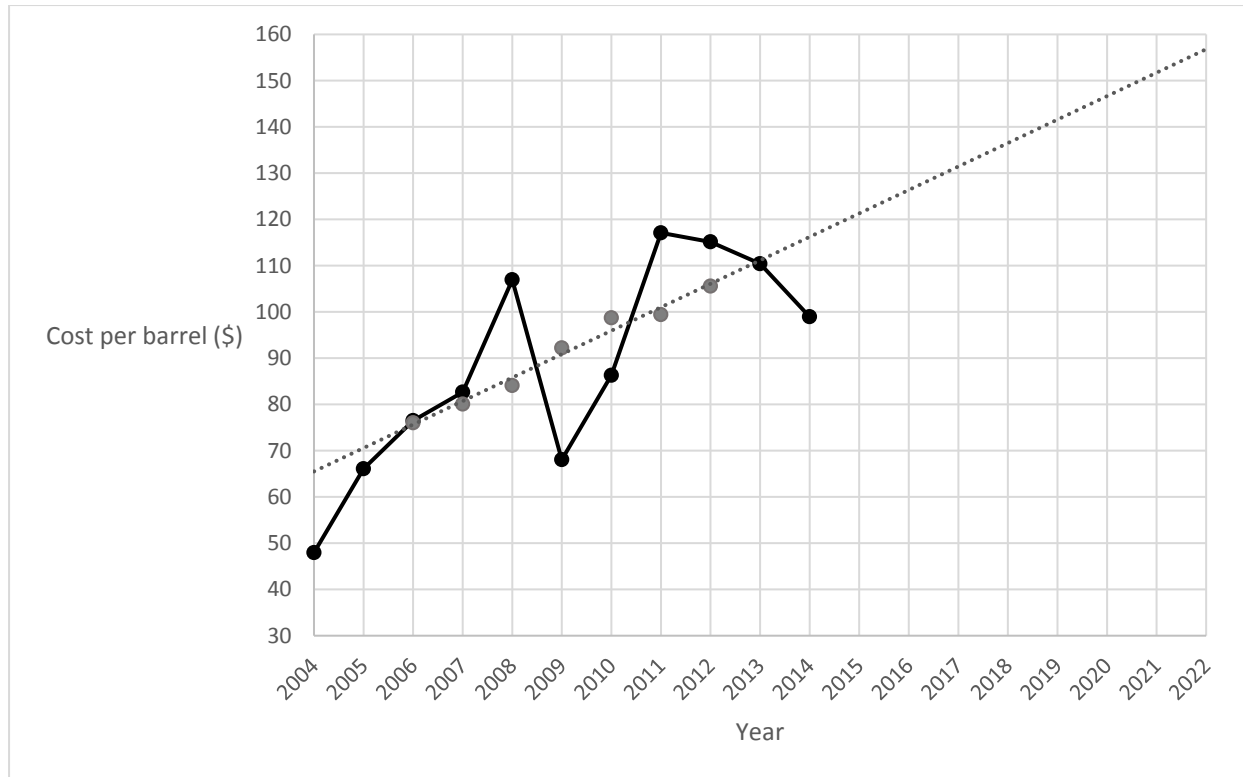
General Marking Guidance

- All candidates must receive the same treatment. Examiners must mark the first candidate in exactly the same way as they mark the last.
- Mark schemes should be applied positively. Candidates must be rewarded for what they have shown they can do rather than penalised for omissions.
- Examiners should mark according to the mark scheme not according to their perception of where the grade boundaries may lie.
- There is no ceiling on achievement. All marks on the mark scheme should be used appropriately.
- All the marks on the mark scheme are designed to be awarded. Examiners should always award full marks if deserved, i.e. if the answer matches the mark scheme. Examiners should also be prepared to award zero marks if the candidate's response is not worthy of credit according to the mark scheme.
- Where some judgement is required, mark schemes will provide the principles by which marks will be awarded and exemplification may be limited.
- When examiners are in doubt regarding the application of the mark scheme to a candidate's response, the team leader must be consulted.
- Crossed out work should be marked UNLESS the candidate has replaced it with an alternative response.

Question	Working	Answer	Marks	Notes
1(a)	$\text{IQR} = 88.4 - 74.1$ $= 14.3$ $88.4 + 1.5 \times 14.3 = 109.85$ $74.1 - 1.5 \times 14.3 = 52.65$	Box plot drawn	6	<p>B1 for correctly identifying the median. 79.1 (Burkina Faso or shown on boxplot)</p> <p>B1 for correctly identifying either the LQ (Guinea 74.1) or UQ (Mozambique 88.4)</p> <p>M1 for $1.5 \times ("88.4 - 74.1")$</p> <p>A1 for identification of outliers as South Africa 16.9, Ghana 49.5 and Benin 50.6 (can be on boxplot)</p> <p>B2 ft for a fully correct box plot drawn (B1 for a partially correct box plot, must plot 3 of items correctly (outliers are 1 item))</p> <p>NOTE: left- hand whisker may not be drawn as the LQ is the 1st non-outlier</p>



Question	Working	Answer	Marks	Notes
1(b)		Two comparisons made	2	C2 for TWO valid comparisons at least one in context eg the 15 largest African countries produce a much greater percentage of energy from renewable sources than the 15 largest EU countries. (C1 for one valid comparison/comment eg the interquartile ranges are very similar) Accept valid comment regarding the outliers.
1(c)	$\frac{(9.4 \times 63200 + 11.5 \times 65000 + 19.1 \times 149000 + 13.1 \times 3780 + 27.7 \times 23300 + 55.9 \times 19800)}{(63200 + 65000 + 149000 + 3780 + 23300 + 19800)} =$	18.5%	3	M1 For finding the energy produced by renewable source for one region eg $9.4 \div 100 \times 63200$ or beginning to work with at least two regions eg adding 2 of $(9.4 \times 63200, 11.5 \times 65000, 19.1 \times 149000, 13.1 \times 3780, 27.7 \times 23300, 55.9 \times 19800)$. M1 A complete method to find the percentage eg $59892.28 \div 324080 \times 100 (=18.48..)$ A1 18 to 18.5%
2(a)	$(86.31 + 117.09 + 115.14 + 110.42 + 98.95) / 5 = 105.582$	105.58	2	M1 Complete method to calculate moving average. A1 105.582 rounded to 3 or more sig fig
2(b)		Points correctly plotted	2	B2 All points plotted correctly. (B1ft At least 5 points plotted correctly.)



Question	Working	Answer	Marks	Notes
2(c)	Line of best fit drawn.	2020 or 2021 or 2022	2	M1 Evidence of use of graph or finding the mean of 5 or 6 differences A1ft 2020 or 2021 or 2022
2(d)		Appropriate comment plus reason	1	C1 Appropriate comment plus reason E.g. Recent trend for the last three years has been downwards so may not be reliable. OR Data has been extrapolated around 10 years from the last moving average point plotted so may not be reliable.
3(a)	$1700.1 \times 1000000 \times 1000 / (92086 \times 1000 \times 365) = 50.58$	2064 or 2065	5	B1 Use of 1700.1 and 92086 M1 Use of "92086" $\times 365$ M1 Use of correct scale factors eg "1700.1" \div "92086" or "1700.1" $\times 10^6 \div$ "92086" M1 Complete method to find number of years eg ("1700.1 $\times 10^6$) \div ("92086" $\times 365$) (= 50.58..) A1 2064 or 2065 condone 50 or 51 years
3(b)		$=(B3-B2)/B2*100$	1	B1 cao
3(c)	$(1.57+1.09+1.66+-0.72+-1.22+3.29+1.26+0.98+1.56+0.92)/10 = 1.039$ $(100+1.039)/100$	1.01	3	M1 $(1.57+1.09+1.66+ -0.72+ -1.22+3.29+1.26+0.98+1.56+0.92)/10$ M1dep $(100+ "1.039")/100$ A1 awrt 1.01 from correct working
3 (d)	$3.36 \times 10^{10} \times (1-1.01^{10}) / (1-1.01)$ OR Summing totals from 2014 - 2023	3.52×10^{11} barrels	3	M1 $3.36 \times 10^{10} \times (1-1.01^n) / (1-1.01)$, n = 9, 10 or 11 OR summing at least 3 individual totals OR calculating 9, 10 or 11 individual totals M1 $3.36 \times 10^{10} \times (1-1.01^{10}) / (1-1.01)$ OR summing the 10 individual totals for the years 2014 - 2023 A1 awrt 3.52×10^{11} (barrels) o.e

4 (a)	$2 \times 1000 \times 1000 = 2000000$	2000000	2	M1 1000×1000 A1 2000000 oe
4 (b)(i)	$0.68 \times 0.638^{10} \times 3000 = \22.79	\$22.79	3	M1 0.68×0.638^{10} ($= 7.59... \times 10^{-3}$) or 0.68×0.638^{11} ($= 4.84... \times 10^{-3}$) M1 Complete method with $t = 10$ or 11 A1 awrt \$23
4 (b)(ii)	$3000 \times 3.33 / 100$	\$99.90 and appropriate comment	2	M1 for use of 3.33 from the table A1 \$99.90 and appropriate comment OR ft "0.75..." cents and 3.33 cents and appropriate comment eg would have cost less without the floods
5 (a)	2005 sales $16.8 / 100 \times 218.5 = 36.7(08...)$	36.7 million	3	B1 Use of 16.8 and 218.5 M1 $16.8 / 100 \times 218.5$ ($= 36.708$) A1 36.7 million (awrt)
5 (b)	"36.7" $\times 805 = 29543.5(m)$ 2014 income $12.8 / 100 \times 315.9 \times 317 = 12817.9584(m)$ Decrease of \$16700 million	decrease of \$16700 million	4	M1 "36.7" $\times \$805$ or $12.8 / 100 \times 315.9$ ($= 40.4352$) M1 $12.8 / 100 \times 315.9 \times \317 ($= 12817.9584$) M1 "36.7" $\times \$805$ – " $12.8 / 100 \times 315.9 \times \317 " or a correct comparison of "36.7" $\times \$805$ and " $12.8 / 100 \times 315.9 \times \317 " A1 decrease of (\$)17000 million oe (awrt) Allow appropriate rounding at any stage
6 (a)	$\sqrt{(104.74^2 / (7768 \times 2.82))}$	0.708	2	M1 $\sqrt{(104.74^2 / (7768 \times 2.82))}$ oe A1 0.708 rounded to 1 dp or more
6 (b)		0.594	6	M1 method to rank Passmark rating from low to high M1 ft finds d for their rankings M1 ft for finding $\sum d^2$ for their ranking A1 for $\sum d^2 = 116$ M1 for using the Spearman rank formula correctly for their figures A1 for SR = 0.59(4406...)

	price	score	d	d ²
AMD Sempron LE-1300	1	1	0	0
AMD A8-3500M APU	2	5	3	9
AMD Turion II P540 Dual-Core	3	3	0	0
AMD Phenom 9850 Quad-Core	4	7	3	9
AMD Phenom II N660 Dual-Core	5	4	-1	1
AMD A10-5800K APU	6	9	3	9
AMD A6-3650 APU	7	8	1	1
AMD FX-6200 Six-Core	8	11	3	9
AMD Athlon II X4 600e	9	6	-3	9
AMD Athlon 64 X2 Dual Core 4800+	10	2	-8	64
AMD FX-8320E Eight-Core	11	12	1	1
AMD FX-8100 Eight-Core	12	10	-2	4
				$\sum d^2 = 116$
				$1 - (6 \times 116) / (12 \times (12^2 - 1))$

6 (c)		Appropriate comments	2	<p>C1ft An appropriate comment</p> <p>C1ft An appropriate comment</p> <p>e.g. For both the INTEL and AMD processors the PPMC and SRC are higher for the Passmark rating than the clockspeed. This shows that the Passmark rating is a better indicator of performance than the clockspeed.</p> <p>There is strong positive correlation for the INTEL processors for both PPMC and SRC.</p> <p>There is weak positive correlation for the AMD processors for both PPMC and SRC.</p> <p>Very small sample size so results might not be reliable.</p> <p>Follow through on their values for PMCC and SRC</p>
-------	--	----------------------	---	---

7	<p>Expected sales: Market itself: $0.7 \times 100000 + 0.2 \times 200000 + 0.1 \times 500000 = 160000$ Go into partnership: $0.2 \times 100000 + 0.3 \times 200000 + 0.5 \times 500000 = 330000$ $60/100 \times 330000 = 198000$</p>	Go into partnership	6	<p>M1 One correct calculation shown in method for calculating expected value of one option e.g. 0.7×100000 M1 Complete method for Market itself OR Go into partnership M1 For working with percentages to find the commission payable or income received from Go into partnership eg $0.4 \times 0.5 \times 500000 (= 100000)$ or $0.6 \times 0.5 \times 500000 (= 150000)$ A1 Manufacture itself = 160000 A1 Go into partnership = 198000 C1(dep M2) ft Correct choice based on their two calculated values or group of figures.</p>
---	---	---------------------	---	---

Pearson Education Limited. Registered company number 872828
with its registered office at 80 Strand, London, WC2R 0RL, United Kingdom