AVERAGES

Pearson Edexcel - Tuesday 21 May 2019 - Paper 1 (Non-Calculator) Foundation Tier

1.

5	11	B1	cao	

Pearson Edexcel – Specimen 1 - Paper 2 (Calculator) Foundation Tier

2.

10	(i)			C1	for correct criticism of use of mean, eg "there is no dress size of 15.3" mode (=14) is most useful since it shows the most popular size	
	(ii)			C1		

OCR November 09 November 2020- Morning (Calculator) Foundation Tier

3.

4	**a**		110	**1**		
	b	**i**	1	**1**		
	b	**ii**	Median [because] All but one score is close to 3 oe	**1**		Allow, it is not distorted by (the high value or 111) oe Accept 3 for Median Must mention or imply clustering or distortion See Appendix

OCR Tuesday 5 November 2019 – Morning (Calculator) Foundation Tier

4.

14			Robert with correct working and reason	**4**	**B1** for 6.5 hours or 6 ½ hours **M1** for 760 ÷ 9 implied by 84[.4] **M1** for 559 ÷ *their* 6.5 implied by 86 Accept alternative method e.g **B1** for 540 and 390 **M1** for 760 ÷ 540 implied by 1.407.. or 1.41 **M1** for 559 ÷ 390 implied by 1.43[3]	Accept correct working in comparable alternative units

OCR Thursday 07 November 2019- Morning (Non-Calculator) Foundation Tier

5.

8	**(a)**	**(i)**	13	**2**	**M1** for ordering at least the first 3 or the last 3 values	11, 11, 13, 22, 58
8		**(ii)**	47	**2**	**B1** for only 11 and 58 identified.	
8	**(b)**		17	**3**	**M2** for $6 \times 22 - (13 + 58 + 22 + 11 + 11)$ **oe** or **M1** for 6×22 or for $13 + 58 + 22 + 11 + 11$ oe	 May be implied by 132 May be implied by 115

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6.

10			3, 4, 6, 7, 12	**4**	**B1** for 6 or 12 placed in correct position **B1** for 3 in the correct position **M1** for $(6.4 \times 5) - (12 + 6 + 3)$ soi by 11 or by 4 and 7 or by any two numbers in the second and fourth positions between 3 and 5 inclusive, and between 6 and 8 inclusive which sum to 11

7.

20	**(a)**		12.8[3....]	**4**	**B1** for at least 3 mid-points seen (from 2.5, 7.5, 15, 30) or implied by products 50,105,165,450 or 770 **M1** for Σmf where m is a value within each group. Allow use of boundaries; allow one error in calculation. If no midpoints seen may be implied by *their* mf **M1 dep** on previous **M1** for *their* 770 ÷ 60
	(b)		The highest number may not have been 40 or the lowest number may not have been 0.	**1**	See appendix

OCR Thursday 8 November 2018 – Morning (Non-Calculator) Foundation Tier

8.

4	(a)	(i)	1.22	2	**M1** for six or seven heights seen in the correct order	1.13, 1.15, 1.20, 1,22, 1,23, 1,24,1.30
		(ii)	0.17 or 17 cm	2	**M1** for 1.30 – 1.13 or 30 – 13 **soi**	
		(iii)	1.21	2	**M1** for 8.47 ÷ 7 **soi**	
	(b)		x such that $1.22 \leq x < 1.30$	2	**M1** for selecting a value stating/indicating that this leaves median unchanged or for selecting a value stating/indicating that this reduces the value of mean or for selecting a value stating/indicating that this reduces the total of the heights	

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9.

17	(a)		47.5	4	**B1** for at least four of 10, 30, 45, 55, 70 **M1 FT** for Σmf where m is a value within each group 10×5 + 30×8 + 45×37 + 55×47 + 70×3 soi by 50+240+1665+2585+210 or 4750 **M1 FT dep** on **M1** for *their* 4750 ÷ *their* (5+8+37+47+3)	May be implied by four correct products or 4750 FT their "midpoints" seen. M1 may be implied by Lower: 0+160+1480+2350+180 (4180) Upper: 100+320+1850+2820+240 (5330) Allow one error in calculation Expect 100
	(b)		Exact speeds for each vehicle are not recorded oe	1		Do not accept, "Because the mid-point is used" or comments on the method used. Accept e.g.: Specific speeds not given or We don't know the speeds The exact speed isn't given

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10.

1	(a)	(i)	5	1		
		(ii)	8	1		
	(b)	(i)	6	1		
		(ii)	10	2	B1 for only 2 and 12 identified	

11.

19	**(a)**		610.7 to 632.2	**5**	**B2** for 1425 to 1475 or **B1** for 11.4 to 11.8 or **M1** for *their length* × 125 AND **B1** for $2\frac{1}{3}$, 2[h] 20 or 2.33… or 140 and **M1** for distance ÷ time and **A1FT** ft for a correct answer for *their length*	See additional guidance This calculation must be seen and distance must be *their* measurement or *their* measurement × 125. You must be convinced that it is a time as a divisor.
	(b)		accept any correct reason e.g. it may not have flown in a straight line or it may have been diverted	**1**		If more than one choose the best one. Comment about distance only, see list of exemplars.

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12.

6	**a**		Entertainment	**1**		
	b		80	**2**	**B1** for 480 or 560 seen or 4 × 20	For B1, could be seen on bar chart
	c		20	**3**	**M2** for $\frac{240}{1200} \times 100$ **oe** Or **M1** for $\frac{240}{1200}$ **oe** or 10% is 120 **soi** or for $\frac{\textit{their}\ 240}{1200} \times 100$ **oe**	*Their* 240 a value between 200 and 280 or the value 510

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13.

17			8, 8, 13 and 15	3	**B2** for 3 or 4 numbers with at least two conditions met out of: • At least two numbers are 8 • The range is 7 • The total is 44 or **B1** for 4 numbers with one condition met or 44 seen	Accept any order Examples: **B2** for 8, 8, 10.5, 17.5 **B2** for 8, 8, 8, 20 **B2** for 8, 8, 28 **B2** for 1, 8, 8 **B1** for 8, 8, 8, 8 **B0** for 8, 8

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14.

4			0 and 5	3	B1 for one correct and M1 for putting times in order isw	given values or their 9 or their 10 values eg 0,0,2,2,6,7,7,9

Pearson Edexcel –Sample Papers - Paper 2 (Calculator) Foundation Tier

15.

9		13	M1 A1	Puts numbers in order or clear attempt to find 5th number **or** (9 + 1)/2 **or** selects 11

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16.

8	**(a)**		(Men's average + women's average) ÷ 2 oe	**1**	Accept half way between the two masses/averages oe or (84 +70) ÷ 2 oe or (84 – 70) ÷2 +70 oe	Allow half way between them or midpoint or added the two and halved May be in stages. Condone missing brackets
	(b)		Correct reason involving distribution of men/women or not all average	**1**	Saying he is correct scores 0 for reason mark but may score example marks Some may be overweight 8 men [0 women] 7 men 1 woman 6 men and 2 women	Can carry 9 women is not enough May be a combination of both $8 \times 84 = 672$ $7 \times 84 + 1 \times 70 = 658$ $6 \times 84 + 2 \times 70 = 644$
			Correct example supporting their reason with result ≥ 630	**2**	**M1** for correct calculation supporting their reason wrongly evaluated or correct value ≥ 630 supporting their reason for their example without working or A correct calculation involving a mass and a number of people.	Eg 8 men weigh 672 kg Multiplication or division Eg $84 \times 8 = 672$ or $630 \div 84 = 7.5$ or $630 \div 70 = 9$

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17.

18			69, 76, 76, 79	**4**	In any order **B3** for 4 values with a mode of 76 and a range of 10 OR **B1** for the sum of the 4 values is 300 soi **B1** for at least 2 values with a mode of 76 **B1** for a range of 10 for their given values	Mark final answer in working if answer line blank Integers only for all B marks Condone if 300 shown in working and then *their* final values do not sum to 300 May be from 2, 3 or 4 values on answer line May be from 2, 3 or 4 values on answer line

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18.

Q	Answer	Mark	Comments
1	12	B1	

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19.

Q	Answer	Mark	Comments
6(a)	9	B1	

Q	Answer	Mark	Comments
6(b)	3 9 9 9 12 14 15 16 18 18 20 or 20 18 18 16 15 14 12 9 9 9 3 or 3 9 9 9 12 14 or 20 18 18 16 15 14	M1	allow one miscopy, extra or omission in full ordered list
	14	A1	
	Additional Guidance		
	Answer only of 14	M1A1	
	14 from an incorrect list will be M1 max eg 3 9 9 9 12 14 15 16 18 19 20 Answer 14	M1A0	
	List ordered but clearly used for mean or mode or range in (b) eg1 3 + 9 + 9 + 9 + 12 + 14 + 15 + 16 + 18 + 18 + 20 = 143 Answer 13 eg2 3 9 9 9 12 14 15 16 18 18 20 = 143 Answer 13 eg3 3 + 9 + 9 + 9 + 12 + 14 + 15 + 16 + 18 + 18 + 20 Answer 13 eg4 3 9 9 9 12 14 15 16 18 18 20 Answer 9 (mode) eg5 3 9 9 9 12 14 15 16 18 18 20 Answer 17 (range)	M0A0 M0A0 M0A0 M0A0 M0A0	
	Answer 13 may come from value between 12 and 14 eg1 3 9 9 9 12 14 15 16 18 18 20 Answer 13 (bod) eg2 3 9 9 9 12 14 15 16 18 20 Answer 13	M1A0 M1A0	
	Allow the ordered list to be seen by the given list		

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20.

Q	Answer	Mark	Comments
28	$a = 2$ and $b = 4$ and $c = 5$ or $a = 4$ and $b = 2$ and $c = 5$ or $a = 0$ and $b = 6$ and $c = 5$	B3	B2 $a + b = 6$ with integer values of $a \geqslant 0$ and $b \geqslant 1$ B1 $c = 5$ or $a + b + c = 11$ with integer values of $a \geqslant 0$ and $b \geqslant 0$ and $c \geqslant 0$ or 13th value = 3 and 14th value = 4 stated or correct median position indicated on a list

Additional Guidance	
Values may be seen alongside or in the table	
Blank answer line does not indicate zero for that value eg $a =$ _____ $b = 6$ $c = 5$	B1
$a = 2$ $b = 6$ $c = 5$	B1
$a = 11$ $b = 0$ $c = 0$	B1
$a = 6$ $b = 0$ $c = 5$	B1
$a = 6$ $b = 0$ $c = 3$	B0

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21.

2	Mode	B1	

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22.

18	**Alternative method 1**		
	(total number of presents =) 12	B1	
	83.4(0) ÷ their total number of presents	M1	
	6.95	A1	
	Alternative method 2		
	83.4(0) ÷ 4 or 20.85 or 83.4(0) ÷ 3 or 27.80	M1	
	their 20.85 ÷ 3 or their 27.80 ÷ 4	M1dep	
	6.95	A1	
	Additional Guidance		

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23.

10(a)	Orders the numbers to at least the sixth number from either end 1 2 2 3 4 5 (… … … …) or 8 6 5 5 5 4 (… … … …) or 4 and 5 indicated or $\frac{4+5}{2}$	M1	(… … … …) 5 4 3 2 2 1 or (… … … …) 4 5 5 5 6 8
	4.5 with no errors in working	A1	oe eg $4\frac{1}{2}$
	Additional Guidance		
	4/5		M1A0
	4,5 (cannot accept as 4.5)		M1A0
	Allow 4 and 5 to be the only ones not crossed out as '4 and 5 indicated'		M1
	eg 1 2 2 3 4 5 5 6 6 8 and answer 4.5 (error in ordering)		M1A0
	eg 1 2 3 3 4 5 5 5 6 8 and answer 4.5 (error in ordering)		M1A0
	Ignore any + signs between ordered values unless the total is then calculated and used in this part		

10(b)	(5 + 6 + 1 + 3 + 5 + 5 + 8 + 4 + 2 + 2) ÷ 10 or 41 ÷ 10	M1	Allow one value omitted or incorrect if method clear
	4.1 or $4\frac{1}{10}$	A1	
	Additional Guidance		
	Answer of 4 with correct working or 4.1 seen		M1A1
	Answer of 4 without correct working and without 4.1 seen		M0A0
	Condone missing first and/or final bracket for M1		
	If their total is not 41, all additions must be shown or implied eg they write 5 + … + 2 = 42 and 42 ÷ 10 eg they write 5 + 6 + 1 + etc = 24 and 24 ÷ 10 (both clearly implying that they are adding up all the numbers – minimum is two of the values shown as being added) but, for example, 42 ÷ 10 (no other working)		M1A0 M0
	Method mark could be scored for work at top of page, above, but not in, part (a) It cannot be assumed that work done in part (a) is intended for part (b)		
	Answer of $\frac{41}{10}$ or $\frac{4.1}{1}$ or 4 r(emainder) 1		M1A0

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24.

29	**Alternative method 1**		
	$-2\frac{7}{8} + 15\frac{1}{4}$ or $15\frac{2}{8}$ or (–)2.875 and 15.25 or (–)$\frac{23}{8}$ and $\frac{61}{4}$	M1	oe common denominator for both fractional parts of the mixed numbers conversion of both numbers to decimals with at least one correct conversion of both numbers to improper fractions with at least one correct
	$-2\frac{7}{8} + 15\frac{2}{8}$ or –2.875 + 15.25 or $-\frac{23}{8} + \frac{122}{8}$	M1dep	oe common denominator correct decimals oe common denominator
	$\frac{99}{8}$ or $12\frac{3}{8}$ or 12.375	A1	oe fraction, mixed number or decimal
	Alternative method 2		
	–2 + 15 and (–)$\frac{7}{8} + \frac{1}{4}$	M1	
	–2 + 15 and (–)$\frac{7}{8} + \frac{2}{8}$ or $13 - \frac{5}{8}$	M1dep	oe common denominator
	$\frac{99}{8}$ or $12\frac{3}{8}$ or 12.375	A1	oe fraction, mixed number or decimal
	Additional Guidance		
	$15\frac{1}{4} - -2\frac{7}{8}$ scores M0, but followed by $15\frac{2}{8} + 2\frac{7}{8}$ scores M1 on Alt 1		
	Values in 2nd mark must be correct; no ft from incorrect conversion		
	$\frac{99}{8}$ incorrectly converted to a decimal or mixed number		M1M1A1
	$13\frac{-5}{8}$		M1M1A0

AQA Thursday 2 November 2017 – Morning (Non-Calculator) Foundation Tier

25.

25	$n - 1$	B1	
	Additional Guidance		

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26.

18	**Alternative method 1**		
	6 × 4 or 24 stated or implied as target total of the four cards	M1	Indicating 1, 5, 7 and 11 are the chosen four cards implies M2
	1 + 5 + 7 + 9 + 11 or 33	M1	
	9	A1	
	Alternative method 2		
	1, 5, 7, 9 → (1 + 5 + 7 + 9) ÷ 4 or 1, 5, 7, 11 → (1 + 5 + 7 + 11) ÷ 4 or 1, 5, 9, 11 → (1 + 5 + 9 + 11) ÷ 4 or 1, 7, 9, 11 → (1 + 7 + 9 + 11) ÷ 4 or 5, 7, 9, 11 → (5 + 7 + 9 + 11) ÷ 4	M1	1, 5, 7, 9 → 22 ÷ 4 or 1, 5, 7, 11 → 24 ÷ 4 or 1, 5, 9, 11 → 26 ÷ 4 or 1, 7, 9, 11 → 28 ÷ 4 or 5, 7, 9, 11 → 32 ÷ 4
	1, 5, 7, 9 → 5.5 or 1, 5, 7, 11 → 6 or 1, 5, 9, 11 → 6.5 or 1, 7, 9, 11 → 7 or 5, 7, 9, 11 → 8	A1	
	9	A1	with no error in the mean of 1, 5, 7, 11
	Additional Guidance		
	Use the alternative scheme that awards the better mark		
	33 – 24		M1M1A0
	1 + 5 + 7 + 11 = 28, 28 ÷ 4 = 6, answer 9 (with no other work)		M1A0A0

27.

22	64 000 000 ÷ 95 000 or 673.(…) or 674 or $\frac{12\,800}{19}$ or 82 000 000 ÷ 140 000 or 585.(…) or 586 or $\frac{4100}{7}$	M1	oe population ÷ area Accept a pair of consistent divisions eg 64 ÷ 95 or 0.673… or 0.674 and 82 ÷ 140 or 0.585… or 0.586
	673.(…) or 674 or 670 and 585.(…) or 586 or 590 or $\frac{89\,600}{133}$ and $\frac{77\,900}{133}$	A1	Correct comparable values from consistent divisions eg 0.674 and 0.586 Accept 700 with division seen for UK Accept 600 with division seen for Germany
	Comparable values and correct conclusion	A1ft	eg 673 and 585 and greater for UK 0.673 and 0.585 and greater for UK ft M1A0 and comparable values Ignore further work

Additional Guidance	
Comparable values means both must be in the same form eg fractions with common denominators	
64 000 000 ÷ 95 000 = 67.4 82 000 000 ÷ 140 000 = 5857 Germany is higher	M1 A0 A1ft
Ignore subtraction of results	
673 and 585 and UK has more people per square mile	M1A1A1ft
673 and 585 and Germany has more space for their population	M1A1A1ft
673 and 585 and UK's population is less spread out	M1A1A1ft
673 and 585 and UK is more than Germany	M1A1A1ft
673 and 585 and UK is 78 more than Germany (ignore further work)	M1A1A1ft

Additional guidance continues on the next page

22 cont	673 and 585 and the difference is 88	M1A1A0ft
	673 and 585 and UK population is bigger	M1A1A0ft
	673 and 586 and UK	M1A1A0ft
	673 and 585 and Germany has more space	M1A1A0ft
	673 > 585 (unless links to countries in working)	M1A1A0ft
	$\frac{12\,800}{19}$ and $\frac{4100}{7}$ and UK is greater (fractions not comparable)	M1A0A0ft

28.

23	Number of televisions sold	B1	

AQA Thursday 8 June 2017– Morning (Calculator) Foundation Tier

29.

7	17 21 21 21 23 25 29 32 36 or 36 32 29 25 23 21 21 21 17 or 17 21 21 21 23 or 36 32 29 25 23 or $\frac{9+1}{2}$ or 5th value	M1	Puts list into order Allow one omission, extra or transcription error in a full list Allow one transcription error in a list of only the first or last five or Works out the position of the median in the list
	23	A1	

Additional Guidance	
Answer 23 (from any or no list)	M1A1
Puts list into order then finds the mean	M1A0
Just circles or identifies 29 or gives answer 29	M0
States 5th and circles 29	M1A0

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30.

10	36 ÷ 9 × 11	M1	oe 36 ÷ 9 and 36 + 2 × 4
	44	A1	
	Additional Guidance		
	Only 36 × 1.2		M0A0
	11 ÷ 9 = 1.2 and 36 × 1.2		M1A0
	11 ÷ 9 = 1.2 and 36 × 1.2 Answer 43.2 (or 43)		M1A0
	11 ÷ 9 = 1.2 and 36 × 1.2 Answer 44 (even after 43.2 seen)		M1A1
	Only $\frac{11}{9}$ of 36		M0
	$\frac{11}{9}$ × 36		M1

AQA Sample Paper 3– Morning (Calculator) Foundation Tier

31.

1(a)	9	B1	
1(b)	6	B1	