FREQUENCY POLYGONS

Pearson Edexcel - Tuesday 11 June 2019 - Paper 3 (Calculator) Higher Tier

1.

3	(a)	$40 < h \leq 50$	B1	accept 40 – 50 oe	
	(b)	polygon drawn (15,7), (25,13) (35,14), (45,12) (55,16), (65,18)	B2 (B1	for fully correct polygon with points plotted at the midpoints for points plotted correctly but not joined by straight lines **or** joining points at correct heights consistently within intervals including plotting at end values **or** correct frequency polygon with one point incorrect **or** correct frequency polygon with first and last points joined directly)	Joining must be with line segments for example, at 10, 20, 30,…or at 20, 30, 40,… Ignore any histogram drawn and any part of frequency polygon outside range of first and last points plotted

Pearson Edexcel - Monday 12 November 2018 - Paper 3 (Calculator) Higher Tier

2.

7	Diagram drawn	B2 (B1	for correct frequency polygon for points plotted at correct midpoints of intervals **or** joining points at correct heights consistently within intervals including plotting at end values **or** correct frequency polygon with one point incorrect **or** correct frequency polygon with first and last points joined directly)	Plotting at (5,14), (15,18), (25,26), (35,12) Must use line segments for B2 Joining must be with line segments NB ignore any histogram drawn and any part of frequency polygon outside range of first and last points plotted

Pearson Edexcel - Wednesday 8 November 2017 - Paper 3 (Calculator) Higher Tier

3.

1	(a)		$160 < h \leq 170$	B1	correct class interval
	(b)		Line segments joining the points (135, 4), (145, 11), (155, 24), (165, 22) and (175, 19)	C2 [C1	for fully correct frequency polygon for points plotted correctly at midpoints of intervals OR joining points with line segments at the correct heights and consistent within the intervals (including end values) OR correct frequency polygon with one point incorrect OR correct frequency polygon with first and last point joined] NB: ignore any histogram drawn and any part of frequency polygon outside range of first and last points plotted

Pearson Edexcel - Specimen Papers Set 1 - Paper 2 (Calculator) Higher Tier

4.

4	(a)		$160 < h \leq 170$	B1	for identifying the correct class interval
	(b)		1. Points should be plotted at mid-interval values 2. The polygon should not be closed	C1 C1	for a correct error identified for a correct error identified

Pearson Edexcel - Monday 8 June 2015 - Paper 2 (Calculator) Higher Tier

5.

9	(a)		Polygon drawn	2	B2 for correct plotting of 5 points and joining with line segments (B1 for points plotted correctly at midpoints of intervals **OR** joining points with line segments at the correct heights and consistent within the class interval (including end values) **OR** correct frequency polygon with one point incorrect **OR** correct frequency polygon with first and last point joined) NB Ignore any histogram drawn and any part of frequency polygon outside range of first and last points plotted
	*(b)		Yes with reason	2	M1 for finding a quarter of 51 and for finding how many teachers sent more than 30 emails C1 for 12.75 or 13 compared to 15 and yes she is correct OR M1 for finding how many teachers sent more than 30 emails and '15'× 4 C1 for comparing 60 with 51 and yes she is correct OR M1 for 15 ÷ 51 (= 0.29...) or $\frac{15}{51} \times 100$ (= 29…%) C1 for comparing 0.29.. with $\frac{1}{4}$ or 0.25 OR 29….% with 25% and yes she is correct

Pearson Edexcel - Friday 7 November 2014 - Paper 2 (Calculator) Higher Tier

6.

8			Polygon drawn	2	B2 for fully correct frequency polygon - points plotted at the midpoint (B1 for all points plotted accurately but not joined with straight line segments) **or** all points plotted accurately and joined with last joined to first to make a polygon **or** all points at the correct heights and consistently within or at the ends of the intervals and joined (can include joining last to first to make a polygon) NB: ignore parts of graph drawn to the left of the 1st point or the right of the last point; ignore any histograms drawn.

Pearson Edexcel - Friday 8 November 2013 - Paper 2 (Calculator) Higher Tier

7.

14	(a)		$20 < T \leq 24$	1	B1 for $20 < T \leq 24$
	(b)	$6\times10 + 8\times14 + 13\times18 + 21\times22 + 2\times26 = 920$ $920 \div 50$	18.4	4	M1 for finding fx with x consistent within intervals (including the end points) allow 1 error; implied by 820, 1020 M1 (dep) for use of all correct mid-interval values eg 920 M1 (dep on 1st M1) for $\sum fx \div \sum f$ A1 for 18.4 oe
	(c)		correct frequency polygon	2	B2 for fully correct frequency polygon - points plotted at the midpoint (B1 for all points plotted accurately but not joined with straight line segments) **or** all points plotted accurately and joined with last joined to first to make a polygon **or** all points at the correct heights and consistently within or at the ends of the intervals and joined (can include joining last to first to make a polygon) NB: ignore parts of graph drawn to the left of the 1st point or the right of the last point

Pearson Edexcel - Thursday 8 November 2012 - Paper 2 (Calculator) Higher Tier

8.

12	(a)		Correct Frequency Polygon	2	B2 Fully correct polygon. Points plotted at the midpoint (B1 All points plotted accurately not joined, **or** one error in plotting but joined **or** all points plotted accurately and joined with, additionally, first joined to last **or** all points at the correct heights and consistently within or at the ends of the intervals **and** joined (Includes joining last to first to make a polygon)) NB: ignore polygon before 1st point, and after last point. Ignore any histograms.
	(b)		$30 < t \leq 40$	1	B1 Allow any notation eg, 30-40 ft polygon
	(c)	$(6+2) = 8, (4+8+14+16+6+2) = 50$	$\frac{8}{50}$ oe	2	M1 $(6+2) \div (4+8+14+16+6+2)$ **or** ft figures from polygon **or** $\frac{8}{a}$ with $a > 8$ **or** $\frac{c}{50}$ with $c < 50$ **or** 8 and 50 used but notation incorrect (eg. 8:50 , 8 out of 50) A1 $\frac{8}{50}$ oe (eg. 0.16) **or** ft figures from polygon

Pearson Edexcel - Friday 2 March 2012 - Paper 3 (Non-Calculator) Higher Tier

9.

12	(a)		Correct frequency polygon	2	B2 Fully correct polygon - points plotted at the midpoint ± ½ square (B1 All points plotted accurately not joined **or** one error in plotting or one omission but joined **or** all points plotted accurately and joined with first joined to last **or** all points at the correct heights and consistently within or at the ends of the intervals and joined (can include joining last to first to make a polygon)).
	(b)		$0 \leq L < 10$	1	B1 $0 \leq L < 10$ **or** 0 – 10 oe

Pearson Edexcel - Monday 6 June 2011 - Paper 3 (Non-Calculator) Higher Tier

10.

13			Points plotted at (2,10), (6,17), (10,28), (14,25), (18,20) and joined with line segments	2	B2 for correct plotting of 5 points (± 1/2 sq) and joining with line segments (B1 for points plotted correctly at midpoints of intervals OR joining points with line segments at the correct heights and consistent within the class interval (including end values) OR correct frequency polygon with one point incorrect OR correct frequency polygon with first and last point joined) NB Ignore any histogram drawn and any part of frequency polygon outside range of first and last points plotted

Pearson Edexcel - Friday 12 November 2010 - Paper 4 (Calculator) Higher Tier

11.

8	(a)		10 to 19	1	B1 cao
	(b)		20 to 29	1	B1 for acceptable reason eg correct answer is 20 to 29 eg $30^{th}/31^{st}$ person not in this interval
	(c)			2	B2 for complete polygon (ignore histograms and any lines below an age of 4.5 or above an age of 65, but award B1 if there is a line joining the first to the last point.) (B1 for one vertical or horizontal error OR incorrect but consistent error in placing the midpoints horizontally OR correct plotting but not joined. In this case ignore a line joining the first to the last.) Plotting tolerance: ± 1 square Points to be joined by lines (ruled or handdrawn, but not curves.)

19	(c)		36 – 38	1	B1 for answer in range 36 – 38 or ft (± 1square) from cf graph using cf = 50 or 50.5
	(d)		9 – 11	2	B2 for answer in range 9 – 11 OR M1 ft from cf graph for valid reading (± 1square) from 56 or 57 or vertical line drawn from age = 56 or 57 and horizontal line drawn to '**y**'-axis A1 ft (± 1square) for 100 – "reading from 56 or 57"

Pearson Edexcel - Monday 7 June 2010 - Paper 3 (Non-Calculator) Higher Tier

12.

8	(a) (b)		15 - 19 Freq polygon through (2, 8), (7, 11), (12, 9), (17, 14) and (22, 18)	1 2	B1 for 15 - 19 oe (eg 15 to 19) B2 for a complete and correct polygon (ignore any histograms, any lines below a mark of 2 or above a line of 22, but award B1 only if there is a line joining the first to last point) (B1 for one vertical or one horizontal plotting error OR for incorrect but consistent error in placing the midpoints horizontally (accept end points of intervals) OR for correct plotting of mid-interval values but not joined) Plotting tolerance ± ½ square Points to be joined by lines (ruled or hand-drawn but **not** curves)

Pearson Edexcel - Thursday 5 November 2009 - Paper 3 (Non-Calculator) Higher Tier

13.

6	(a) (b)		Polygon $20 < t \leq 30$	2 1	B2 Fully correct polygon. Points plotted at the midpoint ±2mm (B1 All points plotted accurately not joined, or one error in plotting but joined) or all points plotted accurately with first joined to last, or all points at the correct heights and consistently within or at the ends of the intervals and joined (Includes joining last to first to make a polygon)). NB: ignore polygon before 1st point, and after last point. Ignore any histograms. B1 $20 < t \leq 30$ or ft from graph..Accept any unambiguous description of the correct interval e.g 20 – 30

OCR GSCE – Tuesday 3 November 2020 – Paper 4 (Calculator) Higher Tier

14.

9	**(a)**		Point accurately plotted and line drawn	**1**		for the '4' mark intent and 32 must lie between 30 and 35 and not on the lines, condone solid/dotty line
	(b)		Correct comment e.g. it peaks in Q1 or the lowest is in Q3	**1**		Condone winter/spring for Q1 and summer/autumn for Q3 and in (b)(c)(d) mark best comment unless contradictory
	(c)		Correct comment e.g. there is a slight rise in sales year on year	**1**		
	(d)		The trend in her sales will continue [at a similar rate] **oe**	**1**		Accept any correct relevant comment referring to general trend or quarter 1 trend isw extra statements

OCR GSCE – Tuesday 21 May 2019 – Paper 4 (Calculator) Higher Tier

15.

13	**(a)**	**(i)**	172	**1**	
13	**(a)**	**(ii)**	16 to 17	**2**	**B1** for 160 or 176 to 177 (may be written or indicated on graph, not just a line through it)
13	**(a)**	**(iii)**	16.6 to 16.7 or 17	**3**	**B2** for [0].83[3…] or 83[.3…]% or [0].166… or [0].167 or [0].17 OR **B1** for 100 (from graph) or 20 **M1** for $\frac{their100}{120}$ [× 100] or $\frac{their20}{120}$ [× 100]
13	**(b)**		76.5 or 77 and 102 or both 28 (or 14+14) and 74 Swimming club has a median in group 160 to 170 oe [Rowing club has median *their* 172] So rowing club [has higher median] oe **FT** *their* **(a)(i)** for conclusion	**5**	**B1** for 76.5 or 77 **M2** for 20 × 1.4 and 10 × 7.4 soi by 102 or both 28 (or 14+14) and 74 or **M1** for 20 × 1.4 or 10 × 7.4 soi by 28 (or 14+14) or 74 Accept any correct alternative methods (e.g. 5 squares = 1 person) **B1** for [swimming club has a median in group] 160 to 170 oe e.g. "≤ 170" (if they use a proportional calculation answer 166 to 167) **A1dep** on previous 4 marks for "rowing club [has higher median"] oe **FT** *their* **(a)(i)** for conclusion

OCR GSCE – Thursday 8 November 2018 – Paper 5 (Non-Calculator) Higher Tier

16.

8	**(a)**		Correctly completes graph	**2**	**B1** for 2 or 3 correct plots or for 4 plots at correct height	Use overlay, mark in 60% zoom For 2 marks, condone points not joined
8	**(b)**		He is correct **oe** with 60 and 150 shown [= 2 : 5]	**2**	**M1** for 13 + 20 + 27 **oe** or 45 + 47 + 58 **oe**	
8	**(c)**		Correct overall comment Correct seasonal comment	**1** **1**	i.e. increasing **oe** e.g. [Sales were] weakest in 1st quarter [Sales were] strongest in 4th quarter	isw extra statements See AG isw extra statements
8	**(d)**		The trend in his sales will continue [at a similar rate] **oe**	**1**		Accept any correct relevant comment referring to general trend or 4th quarter trend isw extra statements See AG

OCR GSCE – Thursday 25 May 2017 – Paper 4 (Calculator) Higher Tier

17.

8	**(a)**		4 points accurately plotted	**2**	**B1** for 2 or 3 points accurately plotted	condone missing or incorrect lines

	(b)		Here are 4 different categories , • Compares the number of people in the whole of 2015 to the whole of 2016 (e.g. there were more people shopping in 2016) • Compares same seasons in 2015 with seasons in 2016 (e.g there were more in Jul–Sept 2016 than in 2015) • Compares seasons within the same year (e.g in 2016 there were more customers in the summer months) • Compares increases / decreases in the number of customers, referring to gradients (e.g the biggest change was between Jul–Sept and Oct-Dec) Do not allow comparisons that only refer to the shape of the graph (e.g, it goes up and down again or it peaks in Jul–Sept) 1 mark for each acceptable comment - for 2 marks they must come from different categories	**2**	**B1** for 1 correct comment	If they make 3 comments mark the best 2. It is possible to cover 2 categories in one comment for 2 marks

AQA GSCE – Thursday 4 June 2020 – Paper 2 (Calculator) Higher Tier

18.

Q	Answer	Mark	Comments
5(a)	Plots at least 3 points correctly	M1	$\pm\frac{1}{2}$ square
	All four points correctly plotted and joined	A1	$\pm\frac{1}{2}$ square ignore working for part (b)
	Additional Guidance		
	$\pm\frac{1}{2}$ square means half a small square horizontally **and** vertically		
	If a point is within tolerance the line must be within $\pm\frac{1}{2}$ square of their point		
	Mark intention for joining point to point		

Q	Answer	Mark	Comments
5(b)	[70, 78]	B1	
	Additional Guidance		
	Answer in range with or without working, with no graph or incorrect graph		B1
	70.5 – 75 on answer line (both values in range)		B1

AQA GSCE – Monday 12 November 2018 – Paper 3 (Calculator) Higher Tier

19.

6(a)	Plots at least 3 points correctly	M1	Plots within the correct 2 mm vertical square
	Fully correct with all points joined	A1	
	Additional Guidance		

6(b)	[4200, 4500]	B2	B1 Any indication the 2018 figure is being increased for 2019 eg a point plotted for 2019 that is greater than 3780
	Additional Guidance		
	Answer in range with or without working		B2
	4300 – 4350 on answer line (both values in range)		B2
	4400 – 4600 on answer line (one value in range)		B1
	Answer outside of range but between 3780 and 4200		B1
	Answer outside of range but greater than 4500		B1