

REAL LIFE AND DISTANCE TIME GRAPHS

Pearson Edexcel - Monday 8 June 2020 - Paper 3 (Calculator) Foundation Tier

1.

10	(a)	80	B1	cao	<p>“Yes” may be implied from wording Ignore any references to actual readings from the graph</p>
	(b)	8	B1	cao	
	(c)	Yes and reason	C1	<p>for yes and reason</p> <p>Acceptable examples Yes, because 27 is greater than 7 Yes, because the drop is 20 more Yes, the gradient is steeper (in the first 3 mins) and is then less steep (in the last 3 mins) Yes, because the drop is 20 less in the last 3 mins Yes, because the drop is more</p> <p>Not acceptable examples No Yes, because the drop is 20 less</p>	

2.

18		258 to 275	M1	for taking a correct reading from the graph that shows conversion of an amount in \$ to £	<p>Must be a complete method to get to 345</p> <p>Condone incorrect money notation if the meaning is clear</p>
			M1	for a complete method eg attempts to read from the graph at using numbers that sum to 345 and finds the sum of their readings eg $6 \times 50 + 45$	
			A1	for answer in the range 258 to 275	

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

3.

27	statement	B2	<p>Two different statements</p> <p>Acceptable eg should be joined with straight lines (not curve)/should use a ruler 1st (quarter) not shown/plotted/labelled/not all quarters labelled does not show all 4 seasons 9,5 missing from vertical axes/not linear vertical (number) axis does not start at 0/the y axis starts at 6 the graph does not begin at 0, it starts at 6 it is not clear what 2, 3, 4 on the x-axis mean the scale of years doesn't make sense there is lack of clarity about what the numbers on the x axis represent graph is curved line</p> <p>Not acceptable eg no value plotted for 2 in 2016 it does not start at 0 (no reference to vertical axis)/missing 0 they should not have connected the dots like that the numbers on the x axis are repeated the numbers along the x axis 2, 3, 4 the years on the x axis have not been written properly does not follow a sequence it needs a discontinuity wiggle on the axis no title</p>	Ignore additional statements provided no contradiction
	statement		(B1)	

Pearson Edexcel - Tuesday 6 November 2018 - Paper 1 (Non-Calculator) Foundation Tier

4.

12	(a)	10	B1	cao	May be shown on graph
	(b)	30	M1	for using the graph to take one correct reading	
			A1	30 or ft from correct use of graph	

Pearson Edexcel - Monday 6 November 2017 - Paper 2 (Calculator) Foundation Tier

5.

8	(a)		Statement	C1	States one thing wrong eg vertical scale is not linear oe
	(b)		Trend described	C1	eg the trend is upwards, positive (trend) oe

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

6.

10	(a)		6.4 – 6.6	B1	for 6.4 – 6.6
	(b)		9.8	B1	for 9.75 – 9.85
	(c)		5, 9	B1	cao

7.

14			3p	M1	for method to find gradient of line
				A1	for 3p oe

8.

23	(a)		Trend described	C1	for “percentage of people who use the shop decreases” oe
	(bi)		13 - 17	P1 A1	for process to draw trend line on graph for 13 - 17
	(bii)		No + reason	C1	for comment, eg “no, because 2020 is beyond the time period covered by the given data”

Pearson Edexcel – Specimen 2 - Paper 3 (Calculator) Foundation Tier

9.

11			60 litres with evidence	M1	reads from graph, eg 30l = 6.6 gals or 6 gals = 27l
				C1	60 litres with sufficient evidence

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

10.

22		Mean of 96 or net deviation of 0 so target met	M1 M1 C1	for correct interpretation of the graph, with at least one correct reading or a line drawn through 96 with at least one correct deviation complete method to find mean of six months sales, eg. $(110+84+78+94+90+120) \div 6 (= 96)$ or the mean of six deviations, eg. $(14-12-16-2-6+24) \div 6 (= 0)$ for a correct answer of 96 or 0 with correct conclusion
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11.

24	(a)	graph	M1 C1 C1	for method to start to find distance cycled in 36 mins, eg. line drawn of correct gradient or $15 \times \frac{36}{60}$ for correct graph from 9.00 am to 9.36 am for graph drawn from "(9.36, 9)" to (10.45, "9" + 8)
	(b)	4.5	M1 A1	for 18×0.25 cao

OCR Thursday 6 June 2019 – Morning (Non-Calculator) Foundation Tier

12.

9	(a)		She travels at constant speeds oe	1		Any incorrect statement invalidates the reasoning eg implying a constant speed for the entire journey SEE APPENDIX
	(b)		36	1		
	(c)		10.30[am] and 11:00[am] distance from home stays the same or zero gradient oe	1 1		Accept. eg 11, 1100, 10 30, 10.30 Do not accept eg 11h, 10h30 SEE APPENDIX
	(d)	(i)	Horizontal line from (1140, 36) to (1300, 36) Line from (their 1300, 36) to reach time axis after their 1300 at (1340, 0) or FT (their 1300 + 40 mins, 0)	1 1 1	Could be a curve provided no horizontal sections	Condone freehand line Ignore construction lines Mark endpoint as the vertex with their second line If no/wrong horizontal section drawn assume (their 1300, 36) to be the start of their line with negative gradient eg 2 marks for one line such as (1140, 36) to (1220, 0)
		(ii)	54	3	M2 for $\frac{36 \text{ or their } (b)}{40} \times 60$ oe or M1 for $\frac{36 \text{ or their } (b)}{40}$ soi by 0.9 or for an equivalent distance to time ratio	Condone 36000 used for M2 and M1 eg 18 associated with 20 but not 36 to 40

OCR Thursday 7 June 2018 – Morning (Non Calculator) Foundation Tier

13.

17	a		Valid assumption	1	Such as 'he travelled at a constant speed'	See AG
	b		12	1		
	c		350	3	B1 7 km = 7000 m and M1 for <i>their</i> 7000/20 If 0 scored SC1 for 12000/58	B1 implied by 7000 seen Accept 7 as <i>their</i> 7000
	d		Valid explanation	1	Such as 'graph is steeper on the first part of the journey'	eg 'last part of graph is not as steep' see AG

OCR Thursday 2 November 2017– Morning (Calculator) Foundation Tier

14.

13	(a)		20	1		
	(b)		60	2	M1 for 50 miles in 50 min oe 50/50[x 60]	
	(c)		Line from (1310, 120) to (1420, 180)	2	B1 for line from (1310, 120) B1 for line to (1420, 180)	Extra stop allowed A non-decreasing curve is OK

OCR Wednesday 8 November 2017– Morning (Calculator) Foundation Tier

15.

11	(a)		4 points plotted and a ruled line joining	2	B1 for 3 points correctly plotted	Line at least between (0, 100) and (150, 25) Use overlay as guide. ½ square accuracy
	(b)	(i)	198 to 202	1	Do not FT their line	
		(ii)	Battery usage remains the same or Battery can be used right to 0% or Trend or pattern continues	1	Accept For every 50 km it uses 25%	
	(c)	(i)	$-\frac{1}{2}$ oe or $-[0].5$	1		Ignore units
		(ii)	100	1	Accept 0, 100	
	(d)		$-\frac{1}{2}d + 100$	1	FT <i>their</i> (c)(i)d + <i>their</i> (c)(ii)	Accept any letter for d (except c)
	(e)	(i)	-5	2	FT <i>their</i> (d) if linear in d. B1 for correct substitution of 210	Expect $-\frac{1}{2} \times 210 + 100$ Accept any letter for d (except c)

		(ii)	Impossible [as battery cannot have negative charge] oe	1	FT <i>their</i> (i) only if <i>their</i> equation gives negative outcome	
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OCR Thursday 8 June 2017 – Morning (Non - Calculator) Foundation Tier

16.

15			64	3	<p>M2 for $160 \div 2.5$ oe isw</p> <p>Or M1 for 160 and 2.5 oe seen or for attempt at 160 divided by <i>their</i> time interval isw</p> <p>Or for clear attempt to find gradient of line joining (0900, 0) to (1130, 160)</p> <p>or <i>their</i> dist divided by 2.5 oe isw</p>	<p>For M1, <i>their</i> time interval is in range 2 to 3 or 2h 30m or 1.5 or 3.5, accept 150 mins used</p>
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AQA Monday 8 June 2020 – Morning (Calculator) Foundation Tier

17.

Q	Answer	Mark	Comments
25	Alternative method 1		
	$12 \times \frac{30}{60}$ or $12 \times \frac{1}{2}$ or 6	M1	oe eg $12 \div 2$
	135 – 90 or 45	M1	oe eg $\frac{3}{4}$
	8	A1	
	Alternative method 2		
	$\frac{30}{135-90}$ or $\frac{30}{45}$ or $\frac{2}{3}$ or $\frac{135-90}{30}$ or $\frac{45}{30}$ or $\frac{3}{2}$	M1	oe eg $30 : (135 - 90)$ or $30 : 45$ or $2 : 3$ or $(135 - 90) : 30$ or $45 : 30$ or $3 : 2$
	$12 \times \frac{30}{135-90}$	M1dep	oe eg $\frac{12 \times 30}{45}$ eg $12 \div \frac{3}{2}$
	8	A1	
	Additional Guidance		
	Award M1 or M2 work even if not subsequently used		
	Check diagram for working		
	0.133... implies M1M1		
	$12 \div 3 = 4$ and $12 - 4 = 8$		M2A1
	Answer –8		M2A0
Ignore units unless 6 or 45 is from clearly incorrect working eg 12 (mph) = 60 minutes 6 (mph) = 30 minutes eg 12 (mph) = 30 minutes 6 (mph) = 15 minutes		M1 M0	

AQA Tuesday 21 May 2019 – Morning (Non-Calculator) Foundation Tier

18.

26(a)	Plots the points (1, 60), (2, 30), (3, 20) and (4, 15)	M1	$\pm \frac{1}{2}$ small square
	Correct smooth curve through correct four points	A1	$\pm \frac{1}{2}$ small square
	Additional Guidance		
	Ignore any calculations and mark the graph only		
	Points cannot be implied by a bar chart or vertical line graph, but condone crosses at the top of a vertical line graph for M1 and the correct curve superimposed for M1A1		
	For M1, ignore the curve outside the domain $1 \leq t \leq 4$ For A1, whether or not the curve extends outside the domain $1 \leq t \leq 4$ it must not have a positive gradient at any point		
	If there is no curve, for M1 there must be no other points with x-coordinate 1, 2, 3 or 4		
	The curve should be a single line with no feathering		
Unless it affects the shape of the curve (in which case A1 cannot be awarded), ignore incorrect evaluations of $60 \div$ a non-integer value eg $60 \div 1.5 = \dots$			


26(b)	Vertical line from $3\frac{1}{2}$ minutes to their graph	M1	$\pm \frac{1}{2}$ small square implied by mark at correct place on the graph or on the vertical axis (but not on the horizontal axis) or by correct reading from their graph
	Correct reading from their graph for $t = 3.5$	A1ft	ft their graph $\pm \frac{1}{2}$ small square
	Additional Guidance		
	Correct reading for their graph, with or without evidence of using graph		M1A1
	No graph in (a)		M0A0
	To score any marks, their graph must be decreasing in the domain $1 \leq t \leq 4$, but may be a straight line or series of connected straight lines		
	Answer from $60 \div 3.5$ with no graph, or which does not match graph		M0A0
Reading from 3.3		M0A0	

19.

26	Alternative method 1		
	Correct reading of at least one value at 0 hours [46, 50] at 1 hour [63, 67] at 2 hours [80, 84] at 3 hours [96, 100] at 4 hours [114, 118]	M1	may be seen on graph
	$\frac{\text{subtraction of two values}}{\text{correct number of hours}}$	M1	division by 1 may be implied
	17	A1	SC1 29
	Alternative method 2		
	A difference in the range for 1 hour [15, 19] for 2 hours [32, 36] for 3 hours [49, 53] for 4 hours [66, 70]	M1	may be seen on graph
	$\frac{\text{difference}}{\text{correct number of hours}}$	M1	division by 1 may be implied
	17	A1	SC1 29
	Additional Guidance		
	$(119 - 42) \div 4 = 19.25$		MOM1A0
	for 2nd M1 in Alt 1, subtraction must be in the correct order unless recovered		
	17 does not imply three marks, so working must be checked eg $(110 - 42) \div 4 = 17$		MOM1A0

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

20.

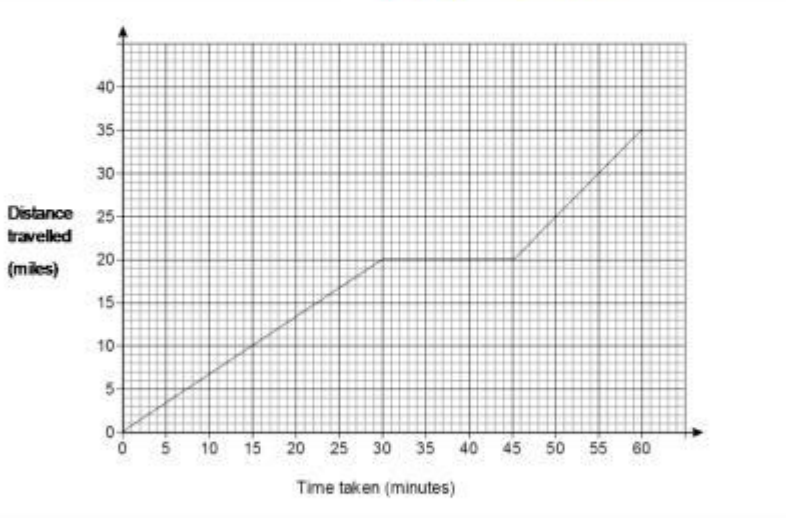
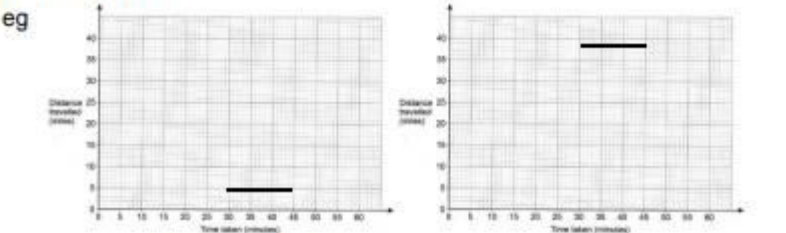
23	Valid criticism referring to the line from (0, 0) to (10, 1)	B1	eg there shouldn't be a curve need to be specific about the line shape, it is not sufficient to simply say it is wrong
	Valid criticism referring to the line from (15, 1)	B1	oe eg he never goes 2 km from home
	Additional Guidance		
	Criticisms can be in either order		
	A correct diagram takes precedence over statements, otherwise ignore diagram		
	For first B1:		
	The first part is curved		B1
	The curve should be a straight line		B1
	He has drawn a curve for constant speed		B1
	The line is curved which shows his speed was not consistent/constant		B1
	He's not going at a constant speed to the shop (correct referral to graph)		B1
	All lines should be straight		B1
	Constant speed should be a diagonal/straight line		B1
	The line shouldn't curve		B1
	The constant speed should be 		B1
	The curved line shows he decreased speed		B1
	It should be a straight line from 0 to 10		B1
	It should be a straight line at the start		B1
A distance-time graph shouldn't have curves		B0	

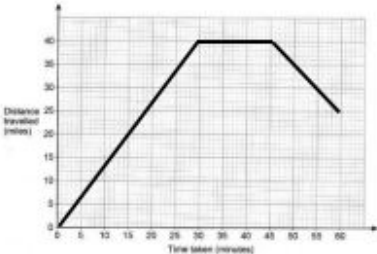
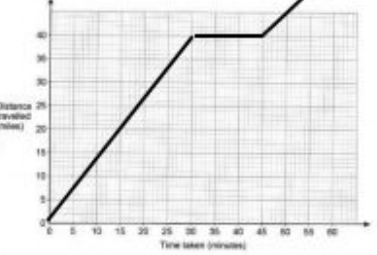
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23 cont	It should be a straight line ('It' seems to be referring to the whole graph)	B0
	The curved line shows he increased and decreased speed	B0
	He was walking at a range of speeds, so not consistent (referral to whole graph)	B0
	The constant speed is drawn incorrectly (how?)	B0
	The lines should be curved or straight, not both	B0
	The curve should be a line of best fit	B0
	It should be a straight line from 0 to 15 (it should be to 10)	B0
	The curve is wrong (how?)	B0
	For 2nd B1:	
	The line should go down at the end	B1
	He isn't walking home, he's walking further away	B1
	He has walked away from home when he hasn't	B1
	The line should go back to the bottom of the graph	B1
	The graph should return to zero	B1
	The last part should be decreasing (instead of increasing)	B1
	The line for him walking home should have negative gradient	B1
	The graph shows he didn't walk home	B1
	The line for him walking home should have negative correlation	B0
	The line for the journey home goes the wrong way	B0
	The graph does not show his journey home	B0
	His house is 2 km away from the shop	B0
	The line should be decreasing instead of increasing (which line?)	B0
	His home is 1 km from the shop not 2 km	B0

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

21.

	Joins (0, 0) to (30, 20)	B1	Line does not need to be straight but must start and finish at correct points and not be decreasing Mark intention
	Horizontal line for 15 minutes from their (30, 20)	B1ft	Mark intention
	Line with gradient 1 or a curve from their (45, 20) and stops at 60 minutes or stops at top edge of grid or higher but not beyond 60 minutes	B1ft	A curve must not be decreasing and must start and finish at two points that could be joined by a line with gradient 1 Condone a horizontal or vertical line from 60 minutes Mark intention
Additional Guidance			
23(a)			B3
	<p>Allow any horizontal line between 30 minutes and 45 minutes if first part of journey is blank</p> <p>eg</p> 		B0B1

23(b)	35	B1ft	Correct or ft total distance travelled for their graph at 60 minutes
	Additional Guidance		
	35 from any or no graph		B1
	If their graph extends beyond 60 minutes, read off at 60 minutes for ft		
	Follow through total distance travelled eg (a)		
			
	(b) answer 25 (b) answer 55		B0ft B1ft
Ignores the stationary parts		B0	
Do not follow through a graph above the grid at 60 eg (a)			
			
(b) answer 55		B0ft	