



# Mark Scheme (Topic Test)

## Data Visualisation

Pearson Edexcel GCE  
In Statistics (9ST0)

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## General Marking Guidance

### Total marks

The total number of marks for the paper is 80.

### Mark types

The Edexcel Statistics mark schemes use the following types of marks:

- **M**      **Method** marks, awarded for 'knowing a method and attempting to apply it', unless otherwise indicated.
- **A**      **Accuracy** marks can only be awarded if the relevant method (M) marks have been earned.
- **B**      **Unconditional accuracy** marks are independent of M marks
- **E**      **Explanation** marks

NOTE: Marks should not be subdivided.

### Abbreviations

These are some of the marking abbreviations that will appear in the mark schemes.

- ft      follow through
- PI      possibly implied
- cao      correct answer only
- cso      correct solution only  
(There must be no errors in this part of the question)
- awrt      answers which round to
- awfw      answers which fall within (a given range)
- SC      special case
- nms      no method shown
- oe      or equivalent
- dep      dependent (on a given mark or objective)
- dp      decimal places
- sf      significant figures
- \*      The answer is printed on the paper

### Further notes

- 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.
- All A marks are 'correct answer only' (cao), unless shown, for example, as A1ft to indicate that previous wrong working is to be followed through.
- All M marks are 'possibly implied' (PI) unless specifically stated otherwise in the 'Notes' column.
- After a **misread**, the subsequent A marks affected are treated as A1ft, but manifestly absurd answers should never be awarded A marks.
- **Crossed out** work should be marked UNLESS the candidate has replaced it with an alternative response.
- If **two solutions** are given, each should be marked, and the resultant mark should be the mean of the two marks, rounded down to the nearest integer if needed.

Question	Scheme	Marks	AO	Notes
1(a)	The graph only displays percentages			
	There has been a proportional rise in people who read news in print between 2021 and 2022			
	The numbers of people who read news in print between 2021 and 2022 are not known			
		E1	3.1b	Reference to the graph and the claim referring to different measures (e.g. percentages and numbers)
	So Colm's headline <b>may not</b> be appropriate	E1dep	3.1b	Must not be definite Dependent on reason
1(b)(i)	Upwards/increasing trend between 2013 and 2015...			oe in context
	...then constant/stable from 2015			oe in context Condone "no/little change"
		E1	1.1	Either
1(b)(ii)	Downwards trend between 2013 and 2022	E1	1.1	oe in context
1(b)(iii)	Constant/stable trend between 2013 and 2022	E1	1.1	oe in context Condone "no/little change"
1(c)	<b><u>Possible criticisms (not exhaustive)</u></b>			
	"Online" includes social media and there is already a line for social media but not for non-social media			
	(y-axis) scales are difficult to read accurately			
	Total numbers are not given for each year			
	Radio and Social media lines overlap so it is ambiguous whether they follow the same pattern or if one line segment is missing			
	Major external events (e.g. pandemic) not shown			
	The greyscale lines for "Social Media", "Radio news" and "Print" are too similar and overlap a lot			
		E1, E1	3.1a, 3.1a	Any two sensible criticisms
Total		7		

Question	Scheme	Marks	AO	Notes
2(a)	$\left(\frac{473}{3870} \times 100\% =\right) 12.22 \dots \%$	B1	1.1	awrt 12.2% oe
2(b)	<b><u>Possible reasons (not exhaustive)</u></b>			
	The graph extends up and down from the middle which may be confusing			oe e.g. no fixed point of reference / origin
	The lines separating Canada, South America and Africa are hard to read / distinguish			
	The “2023 additions” column next to the graph only represents the change in the graph, not the total capacity			
		E1	3.1a	Any one reason Any additional reasons listed here may be seen in in part (c)
2(c)	<b><u>Possible further criticisms (not exhaustive)</u></b>			
	The pictures of wind turbines encroach onto the graph			
	No scales on y-axis			
	Difficult to read values on x-axis / y-axis			May be seen in context
	Abbreviations such as “GW” not defined			
		E1	3.1a	Any one reason Any additional reasons listed in part (b) may be seen here for E1 provided it is different to answer provided in (b)
<b>Total</b>		<b>3</b>		

Question	Scheme	Marks	AO	Notes
3(a)	$(0.24 \times 23000 =) 5520$	B1	1.1	
3(b)	<b><u>Possible criticisms (not exhaustive)</u></b>			
	“Every day or most days” is written in a different orientation			
	“At least once a week” and “Never”/ “Less often” are the same area but not congruent / different sized rectangles			
	The 17 countries are not disclosed			
	“Gardening” / “Yard-work” not clearly defined			
	“Less often” is ambiguous			
	No significance to the dimensions of the rectangle(s)			
		E1, E1	3.1a	Any two sensible reasons
3(c)	Bar chart			
	Pie chart			
		B1	1.1	Either
<b>Total</b>		<b>4</b>		

Question	Scheme	Marks	AO	Notes
4(a)	The line is likely to be the average cumulative rainfall in those months between 1991 and 2020	E1	2.1a	
	The line is displayed to be used as a benchmark/comparison for the cumulative rainfall in a month	E1	3.1a	
4(b)	Rainfall in 2022 was lower than (the) average (for 1991 to 2020)	E1	2.1a	
4(c)	Maximum = 1350~1420 Minimum = 750~850	B1	1.1	Reasonable values for both PI
	Range = 575~625	B1	1.1	Answer in range scores B1B1
4(d)	<b><u>Possible criticisms (not exhaustive)</u></b>			
	Scales are not detailed enough to read accurately			
	2021 is not included			
	Extra colours in the regions are not defined			
	The variation in rainfall between specific months in specific years is not known			
		E1	3.1a	Any
<b>Total</b>		<b>6</b>		



Question	Scheme	Marks	AO	Notes
5(a)	<b><u>Possible “absolute” comments (not exhaustive)</u></b>			
	(Satisfaction of) Wages appear to be highest in Finance			Highest aspect
	(Satisfaction of) Work-life balance appear to be lowest in Finance			Lowest aspect
	Finance appears to have a lower overall satisfaction			Overall by department
	Growth opportunities has the lowest satisfaction rating across all three departments			Overall by aspect
	<b><u>Possible “comparative” comments (not exhaustive)</u></b>			
	(Satisfaction of) diversity is higher in marketing than in finance			Comparison of one aspect between departments
	(Satisfaction of) diversity is higher than wages in marketing			Comparison of different aspects within one department
	Finance appear to have a lower overall satisfaction than sales or marketing			Overall by department
	Growth opportunities has a lower satisfaction rating than Diversity across the three departments			Overall by aspect
		E1, E1, E1	2.1a, 2.1a, 2.1a	A maximum of one “absolute” statement Each statement must relate to a distinct aspect/department
5(b)(i)	<b><u>Possible advantages (not exhaustive)</u></b>			
	You can easily compare ratings across different aspects			
	You can easily compare (absolute or proportionally) the ratings of each aspect across the department			
		E1	3.1a	Any reasonable advantage
5(b)(ii)	<b><u>Possible disadvantages (not exhaustive)</u></b>			
	It is harder to compare overall ratings between departments			
	A stacked bar chart requires more statistical knowledge to interpret (compared to e.g. a multi-bar chart)			
		E1	3.1a	Any reasonable disadvantage
<b>Total</b>		<b>5</b>		