



# Mark Scheme (Results)

January 2021

Pearson Edexcel Award  
In Statistical Methods (AST10)  
Level 1

## **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](http://www.edexcel.com) or [www.btec.co.uk](http://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](http://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](http://www.pearson.com/uk)

January 2021

Publications Code AST10\_01\_2101\_MS

All the material in this publication is copyright

© Pearson Education Ltd 2021

## NOTES ON MARKING PRINCIPLES

### 1 Types of mark

M marks: method marks

A marks: accuracy marks

B marks: unconditional accuracy marks (independent of M marks)

### 2 Abbreviations

cao – correct answer only

isw – ignore subsequent working

oe – or equivalent (and appropriate)

indep - independent

ft – follow through

SC: special case

dep – dependent

### 3 No working

If no working is shown then correct answers normally score full marks

If no working is shown then incorrect (even though nearly correct) answers score no marks.

### 4 With working

If there is a wrong answer indicated on the answer line always check the working in the body of the script (and on any diagrams), and award any marks appropriate from the mark scheme.

If working is crossed out and still legible, then it should be given any appropriate marks, as long as it has not been replaced by alternative work.

If it is clear from the working that the “correct” answer has been obtained from incorrect working, award 0 marks. Send the response to review, and discuss each of these situations with your Team Leader.

If there is no answer on the answer line then check the working for an obvious answer.

Any case of suspected misread loses A (and B) marks on that part, but can gain the M marks. Discuss each of these situations with your Team Leader.

If there is a choice of methods shown, then no marks should be awarded, unless the answer on the answer line makes clear the method that has been used.

**5 Follow through marks**

Follow through marks which involve a single stage calculation can be awarded without working since you can check the answer yourself, but if ambiguous do not award.

Follow through marks which involve more than one stage of calculation can only be awarded on sight of the relevant working, even if it appears obvious that there is only one way you could get the answer given.

**6 Ignoring subsequent work**

It is appropriate to ignore subsequent work when the additional work does not change the answer in a way that is inappropriate for the question: e.g. incorrect cancelling of a fraction that would otherwise be correct

It is not appropriate to ignore subsequent work when the additional work essentially makes the answer incorrect e.g. algebra.

Transcription errors occur when candidates present a correct answer in working, and write it incorrectly on the answer line; mark the correct answer.

**7 Parts of questions**

Unless allowed by the mark scheme, the marks allocated to one part of the question CANNOT be awarded in another.

**8 Use of ranges for answers**

If an answer is within a range this is inclusive, unless otherwise stated.

**9 Probability**

Probability answers must be given as fractions, percentages or decimals. If a candidate gives a decimal equivalent to a probability, this should be written to at least 2 decimal places (unless tenths).

Incorrect notation should lose the accuracy marks, but be awarded any implied method marks.

If a probability answer is given on the answer line using both incorrect and correct notation, award the marks.

If a probability fraction is given then cancelled incorrectly, ignore the incorrectly cancelled answer.

PAPER: AST10_01																			
Question		Working		Answer		Mark	Notes												
1	(a)			<table border="1"><tr><td>✓</td><td></td><td></td></tr><tr><td></td><td></td><td>✓</td></tr><tr><td></td><td>✓</td><td></td></tr><tr><td></td><td>✓</td><td></td></tr></table>	✓					✓		✓			✓		3	B3 for all four correct (B2 for three correct B1 for two correct)	
	✓																		
			✓																
		✓																	
	✓																		
	(b)		48		1	B1 cao													
	(c)	34 39 39 40 42 44 48 48 48	42		2	M1 for correctly ordering the length of leaves A1 cao													
2	(a)(i)		D		1	B1 cao													
	(a)(ii)		B		1	B1 cao													
	(b)(i)		unlikely		1	B1 cao													
	(b)(ii)		impossible		1	B1 cao													
3	(a)		32		1	B1 cao													
	(b)		2 and ½ squares		1	B1 for correct diagram													
	(c)		22		2	M1 for 34 – 12 or 8 + 8 + 4 + 2 oe A1 cao													
	(d)		98		2	M1 for (32 + 34 + 12 + 20) or (11 × 8 + 2 + 4 + 4) or (12 × 8 +2) A1 cao													

PAPER: AST10_01									
Question		Working	Answer	Mark	Notes				
4			2 aspects	2	B2 for 2 correct aspects from 1. Overlapping options 2. No time frame 3. No zero				
5 (a)		RG, RB, RY, GB, GY, BY	6 correct combinations	2	B2 for correct outcomes listed (No repeats) (B1 for 3 or 4 or 5 outcomes listed and ignore repeats)				
(b)			$\frac{1}{6}$	1	B1ft $\frac{1}{6}$ oe				
6 (a)			115	1	B1 cao				
(b)			C	1	B1 cao				
(c)			A	1	B1 cao				
(d)			B and D	1	B1 cao				
(e)			100	2	M1 for $(91 + 77 + 90 + 87 + 115 + 120 + 120) \div 7$ A1 cao				
(f)			27	2	M1 for $75 - 48$ A1 cao				
7			<table><tr><td>Veg</td><td>Tally</td></tr><tr><td></td><td></td></tr></table>	Veg	Tally			2	B1 for data collection sheet with column/row labelled vegetable/type or a list of at least 3 vegetables B1 for column/row labelled tally/frequency/total oe
Veg	Tally								

PAPER: AST10_01				
Question	Working	Answer	Mark	Notes
8 (a)		23, 108 36, 80 65, 121	3	B1 for 23 and 108 B1 for 36 and 80 B1 for 65 and 121
(b)		$\frac{132}{240}$	1	B1 for $\frac{132}{240}$ oe
(c)		$\frac{72}{240}$	2	M1 for $\frac{31+41}{240}$ A1 $\frac{72}{240}$ oe
9 (a)		5, 4, 8, 3	2	B2 for all four frequencies correct (condone four correct tallies) (B1 for 2 or 3 frequencies correct)
(b)		Correct bar chart	3	B1 for sensible scale and label on the vertical axis B1 for 4 bars drawn to the correct heights (ft their table) B1 for labels on the horizontal axis
10 (a)		3	1	B1 cao
(b)		61	2	M1 for $(0 \times 2) + (1 \times 6) + (2 \times 8) + (3 \times 9) + (4 \times 3)$ A1 cao

PAPER: AST10_01				
Question	Working	Answer	Mark	Notes
11 (a)		69	1	B1 cao
(b)		5	1	B1 cao
(c)		31	2	M1 for 73 and 42 seen together A1 cao
(d)		A correct comparison	1	B1ft for range is higher in January than February oe
12 (a)		$\frac{12}{25}$	1	B1 $\frac{12}{25}$ oe
(b)		0	1	B1 for 0 condone $\frac{0}{25}$
(c)		0	1	B1 for 0 condone $\frac{0}{25}$
(d)		$\frac{13}{25}$	1	B1 for $\frac{13}{25}$ oe
13 (a)		$\frac{8}{15}$	1	B1 $\frac{8}{15}$ oe
(b)		$\frac{91}{150}$	1	B1 $\frac{91}{150}$ oe
(c)		Pam More trials	2	B2 Pam with correct reason (B1 for correct reason with incorrect/no conclusion)



PAPER: AST10_01				
Question	Working	Answer	Mark	Notes
14		2 aspects identified	2	B2 for 2 aspects from 1. A missing day 2. Different size of fish 3. Unclear what part of a fish represents (condone cannot have part of a fish) 4. Condone no title B1 for one correct aspect
15 (a)		0.82	2	M1 for $1 - 0.18$ A1 0.82 oe
(b)		0.29	3	M1 for $1 - (0.24 + 0.18)$ or ' $0.82$ ' $- 0.24$ M1 for ' $0.58$ ' $\div 2$ A1 0.29 oe
16 (a)		Upwards	1	B1 upwards oe
(b)		110	1	B1 cao
(c)		440	2	M1 for $125 + 135 + 180$ (allow 1 error) A1 cao
17 (a)		Points plotted correctly	2	B2 for 3 points plotted correctly at (27,32), (28,35) and (29,41) (B1 for (27,32) or (28,35) or (29,41) plotted correctly)
(b)		Positive	1	B1 for positive
(c)		14 - 18	1	B1 for 14 – 18

PAPER: AST10_01				
Question	Working	Answer	Mark	Notes
18	Angles 108°, 162° and 90°	Correct pie chart	3	M1 for at least one correct angle calculated or one correct angle drawn in the pie chart A1 for all angles correctly drawn A1 for correct labels in only 3 sectors
19 (a)		Wednesday	1	B1 cao
(b)		12	3	M1 for $36/2 (=18)$ M1 for using the scale on the vertical axis (can be given for 18 at the correct place on the vertical axis) A1 cao
(c)		8	1	B1 for 8 or ft from their scale

