

Mark Scheme (Results)

Summer 2026

Pearson Edexcel International Advanced Level

In Statistics S1 (WST01) Paper 01A

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General Marking Guidance

- 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.
- Crossed out work should be marked UNLESS the candidate has replaced it with an alternative response.

EDEXCEL IAL MATHEMATICS

General Instructions for Marking

1. The total number of marks for the paper is 75.
2. The Edexcel Mathematics mark schemes use the following types of marks:
 - **M** marks: Method marks are awarded for 'knowing a method and attempting to apply it', unless otherwise indicated.
 - **A** marks: Accuracy marks can only be awarded if the relevant method (M) marks have been earned.
 - **B** marks are unconditional accuracy marks (independent of M marks)Marks should not be subdivided.

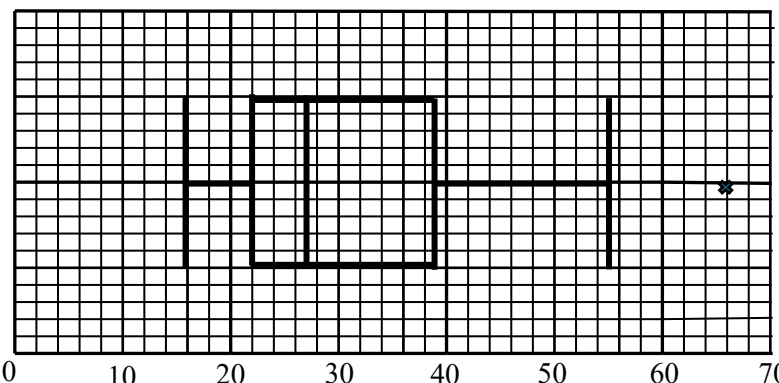
3. Abbreviations

These are some of the traditional marking abbreviations that will appear in the mark schemes and can be used if you are using the annotation facility on ePEN:

- bod – benefit of doubt
- ft – follow through
 - the symbol $\checkmark$ will be used for correct ft
- cao – correct answer only
- cso – correct solution only. There must be no errors in this part of the question to obtain this mark
- isw – ignore subsequent working
- awrt – answers which round to
- SC – special case
- oe – or equivalent (and appropriate)
- d... or dep – dependent
- indep – independent
- dp – decimal places
- sf – significant figures
- * – The answer is printed on the paper or ag- answer given
- $\square$ or d... – The second mark is dependent on gaining the first mark

4. All A marks are 'correct answer only' (cao), unless shown, for example, as A1 ft to indicate that previous wrong working is to be followed through. After a misread however, the subsequent A marks affected are treated as A ft, but manifestly absurd answers should never be awarded A marks.
5. For misreading which does not alter the character of a question or materially simplify it, deduct two from any A or B marks gained, in that part of the question affected. If you are using the annotation facility on ePEN, indicate this action by 'MR' in the body of the script.
6. If a candidate makes more than one attempt at any question:
 - a) If all but one attempt is crossed out, mark the attempt which is NOT crossed out.
 - b) If either all attempts are crossed out or none are crossed out, mark all the attempts and score the highest single attempt.
7. Ignore wrong working or incorrect statements following a correct answer.

Question Number	Scheme		Marks
1(a)			M1 A1 (2)
(b)	$p + (1 - p) \times 0.35 + (1 - p) \times 0.65 \times 0.5 [= 0.74]$ or $(1 - p) \times 0.65 \times 0.5 [= 1 - 0.74]$		M1
	$0.325p = 0.065$ or $1 - p = 0.8$		M1
	$p = 0.2$		A1
			(3)
(c)	0.26 oe		B1
			(1)
(d)	$\frac{0.8 \times 0.35}{0.74}$		M1
	$= \frac{14}{37}$		A1
			(2)
	Notes		Total 8
(a)	M1	for the correct structure of the branches, with no extra branches unless the probabilities = 0	
	A1	all probabilities correct on the branches with appropriate labels. e.g. gets it in and not get it in or win and lose or in and out	
(b)	M1	for a correct probability expression. May be implied by $p = 0.2$ oe	
	M1	For forming an equation with p and $1 - p$ and 0.74 with an attempt to solve or $1 - p$ and $1 - 0.74$ with an attempt to solve. May be implied by $p = 0.2$ oe	
	A1	Oe e.g. $\frac{1}{5}$	
(c)	B1	Oe e.g. $\frac{13}{50}$	
(d)	M1	for a correct ratio of probabilities ft their 0.8 ($1 - p = 0.8$)	
	A1	allow awrt 0.378	

Question Number	Scheme		Marks
2(a)(i)	Median = 27		B1
(ii)	IQR = $39 - 22 = 17$		M1 A1
			(3)
(b)	$[22 - 1.5 \times "17" = -3.5 \text{ and } 39 + 1.5 \times "17" = 64.5]$		M1
	So 66 is the only outlier		A1
			M1 M1 A1ft
			(5)
(c)(i)	$\frac{115}{23} [= 5]$	$115 + 200 \times 23 [= 4715]$	M1
	$200 + "5" = 205$	$\frac{"4715"}{23} = 205$	M1A1
(ii)	$\sqrt{\frac{4623}{23} - "5" ^2}$	$\sqrt{\frac{4623 + 400 \times "4715" - 23 \times 40000}{23} - "205" ^2}$	M1
	= awrt 13.3		A1
			(5)
	Notes		Total 13
(a)	B1	Cao	
	M1	for $39 - a$ where $a < 27$ or $b - 22$ where $b > 27$ May be implied by IQR = 17	
	A1	Cao	
(b)	M1	for a correct method to find the upper outlier boundary	
	A1	for 66 identified as the one outlier NB If no working shown then 66 (only) marked on the box plot implies M1A1	
	M1	box with 2 whiskers	
	M1	lower whisker plotted at 16 or upper whisker at 55/64.5 (ft their upper outlier boundary) Allow $\frac{1}{2}$ square tolerance	
	A1ft	fully correct with 1 outlier ft Q1, Q2 and Q3 Allow $\frac{1}{2}$ square tolerance	
(c)(i)	M1	for $\frac{115}{23}$ May be implied by 5 or $115 + 200 \times 23$ May be implied by 4715 or $\bar{x} = 205$	
	M1	for adding their 5 to 200 or dividing their 4715 by 23 May be implied by 205	
	A1	Cao	
(ii)	M1	for a correct method to find the standard deviation	
	A1	awrt 13.3 Allow $\sqrt{176}$ oe e.g. $4\sqrt{11}$	

Question Number	Scheme		Marks
3(a)	$[E(X) =](-4) \times r + (-2) \times s [+0 \times t] + 2 \times s + 6 \times r [= 0.36] \text{ or } 2r [= 0.36]$		M1
	$r = 0.18^*$		A1*
			(2)
(b)	$[E(X^2) =](-4)^2 \times r + (-2)^2 \times s [+0^2 \times t] + 2^2 \times s + 6^2 \times r \text{ or } 52r + 8s \text{ or } 9.36 + 8s$		M1
	$[Var(X) =]52r + 8s - 0.36^2 [= 10.8304] \text{ or } [Var(X) =]9.36 + 8s - 0.36^2 [= 10.8304]$		M1
	or $8s = 1.6$		
	$s = 0.2$		A1
	$2 \times 0.18 + 2 \times "s" + t = 1 \text{ or } "0.76" + t = 1$		M1
	$t = 0.24$		A1
			(5)
(c)	$[E(7 - 5X) = 7 - 5 \times 0.36 =]5.2$		B1
	$[Var(7 - 5X) =](-5)^2 \times 10.8304 \text{ or } 297.8 - 5.2^2$		M1
	$= 270.76$		A1
	awrt 271		
			(3)
(d)	$2X^2 + 5X - 7 > 0 \text{ or } 2X^2: 32, 8, 0, 8, 72$		M1
	$[(X - 1)(2X + 7) > 0] \text{ so } X > 1 \text{ or } X < -3.5 \text{ or } 7 - 5X: 27, 17, 7, -3, -23$		M1
	Need -4, 2 and 6 or $2r + s \text{ or } 2 \times 0.18 + "0.2"$		M1
	0.56		A1
			(4)
	Notes		Total 14
(a)	M1	for a correct method to find $E(X)$ e.g. $-4r - 2s [+0t] + 2s + 6r \text{ or } 2r = \dots$	
	A1*	Answer is given so no incorrect working must be seen	
(b)	M1	for a correct method to find $E(X^2)$ e.g. $16r + 4s [+0t] + 4s + 36r$ May be seen embedded in a calculation of $Var(X)$	
	M1	for a correct method to find $Var(X)$ in terms of s and r	
	A1	$s = 0.2$	
	M1	for use of the sum of the probabilities = 1 You may need to check if no working shown ($t = 0.64 - 2 \times "s"$)	
	A1	$t = 0.24$	
(c)	B1	Cao	
	M1	For $(-5)^2 \times 10.8304 \text{ or } 297.8 - 5.2^2$	
	A1	awrt 271	
(d)	M1	for a correct inequality > 0 Can be implied by $x = -3.5$ and $x = 1$ or all values of $2X^2$ stated. May be implied by all values of $2X^2 + 5X - 7: 5, -9, -7, 11, 95$	
	M1	for $X > 1$ or $X < -3.5$ Can be implied by identifying -4, 2 and 6 or all values of $7 - 5X$ stated. May be implied by all values of $2X^2 + 5X - 7: 5, -9, -7, 11, 95$	
	M1	for identifying -4, 2 and 6 If seen as a calculation then ft their s May be seen in parts e.g. $0.18 + "0.2"$ and 0.18	
	A1	Oe	

Question Number	Scheme		Marks
4(a)	Width = 3 [cm]		B1
	Area of 6.72 for a frequency of 16 so $\frac{6.72}{16} \times 40 = 16.8$ for a frequency of 40		M1
	$[h =] \frac{16.8}{3} = 5.6$ [cm]		A1
			(3)
(b)	$Q_2 [= 45+] \frac{17}{50} \times 2$ or $Q_2 [= 47-] \frac{33}{50} \times 2$		M1
	or $[45+] \frac{125-108}{158-108} \times (47-45)$ or $[47-] \frac{158-125}{158-108} \times (47-45)$		A1
	= awrt 45.7		(2)
(c)(i)	Mean = $\left[\frac{11225}{250} \right] 44.9$		B1
(ii)	$\sqrt{\frac{507388}{250} - "44.9" ^2} = \text{awrt } 3.68$		M1 A1
			(3)
(d)	$\frac{16}{4} + 49 + \frac{40}{2} [= 73]$ or $\left(\frac{1}{2} \times 40 + 68 \right) - \left(\frac{3}{4} \times 16 + 3 \right) [= 73]$		M1
	$\frac{"73"}{250} \times \frac{"72"}{249}$		M1
	$\frac{876}{10375} = 0.0844...$		A1
			(3)
(e)(i)	No change		B1
(ii)	No change		B1
			(2)
	Notes		Total 13
(a)	B1	Cao	
	M1	for sight of 16.8 or $fd = 4$ or $w \times h = 16.8$ oe	
	A1	Cao	
(b)	M1	for $\frac{17}{50} \times 2$ or $\frac{33}{50} \times 2$ Allow use of 17.5 or 32.5	
	A1	awrt 45.7	
(c)(i)	B1	Cao	
(ii)	M1	a correct method to find the standard deviation (must include the square root)	
	A1	awrt 3.68	
(d)	M1	for a correct method to find the number of people. May be implied by 73	
	M1	Ft their 73	
	A1	oe Allow awrt 0.084	
(e)(i)	B1	Cao	
(ii)	B1	Cao	

Question Number	Scheme		Marks
5(a)	$\frac{9}{25} = x + x - x^2$ oe or $1 - 2x + x^2 = \frac{16}{25}$ oe		M1
	$[(5x - 1)(5x - 9) = 0 \Rightarrow] x = \frac{1}{5}$ or $[(1 - x)^2 = \frac{16}{25} \Rightarrow] x = \frac{1}{5}$		A1
			(2)
(b)(i)	$3P(C \cap D) = \frac{11}{20} + P(D) - P(C \cap D)$		M1
	$\frac{6}{13}P(D) = P(C \cap D)$		M1
	$4\left(\frac{6}{13}P(D)\right) = \frac{11}{20} + P(D)$ oe		M1
	$P(D) = \frac{13}{20}$		A1
			(4)
(b)(ii)	$P(C \cap D) = \frac{3}{10}$		B1ft
	$[P(D C') =] \frac{P(D \cap C')}{P(C')} = \frac{7/20}{9/20} = \frac{7}{9}$		M1A1
			(3)
	Notes		Total 9
(a)	M1	for a correct 3TQ May be implied by $x = \frac{1}{5}$ or $x = \frac{9}{5}$	
	A1	Oe If $x = \frac{9}{5}$ is stated then it must be rejected	
(b)(i)	M1	for writing or using $P(C \cup D) = P(C) + P(D) - P(C \cap D)$	
	M1	for use of $P(C D) = \frac{6}{13}$ e.g. $\frac{6}{13} = \frac{P(C \cap D)}{P(D)}$ May be embedded in an equation to find the $P(D)$	
	M1	for setting up a correct equation in terms of $P(D)$ only Allow equivalent equations e.g. $P(D)\left(4\left(\frac{6}{13}\right) - 1\right) = \frac{11}{20}$ or $\frac{\frac{1}{4}\left(\frac{11}{20} + P(D)\right)}{P(D)} = \frac{6}{13}$ May be implied by $P(D) = \frac{13}{20}$ oe	
	A1	Oe	
(b)(ii)	B1ft	for $P(C \cap D) = \frac{3}{10}$ ft their $P(D)$ e.g. $\frac{6}{13} \times \frac{13}{20}$ " May be seen in (b)(i) May be implied by $P(D \cap C') = \frac{7}{20}$ or $P(C D) = \frac{7}{9}$	
	M1	for a correct conditional probability expression e.g. $\frac{P(D \cap C')}{P(C')}$ or $\frac{P(D) - P(C \cap D)}{1 - P(C)}$ oe or a correct ratio of probabilities.	
	A1	Allow awrt 0.778	

Question Number	Scheme		Marks
6(a)	$P(W > 3500) = P\left(Z > \frac{3500 - 3200}{200}\right) [= P(Z > 1.5)]$		M1
	0.0668	(Calc 0.066807...) awrt 0.0668	A1
			(2)
(b)	$P(W > 3600) = P\left(Z > \frac{3600 - 3200}{200}\right) [= P(Z > 2)]$		M1
	0.0228	(Calc 0.02275...)	A1
	"0.0228"		M1
	"0.0668"		
	0.3413...	awrt 0.341	A1
			(4)
(c)	$0.756 \times "0.0668" [= 0.0505]$		M1
	$\frac{w - 3200}{200} = 1.64$		M1B1
	3528		A1
			(4)
	Notes		Total 10
(a)	M1	for standardising using 3500, 3200 and 200 May be implied by ± 1.5	
	A1	awrt 0.0668	
(b)	M1	for standardising using 3600, 3200 and 200 May be implied by ± 2	
	A1	awrt 0.0228 May be implied by $1 - 0.9772$ if used in a ratio of probabilities	
	M1	for a correct ratio of probabilities ft their 0.0228 and their 0.0668 provided it results in a probability	
	A1	awrt 0.341 Allow $\frac{57}{167}$	
(c)	M1	ft their 0.0668 May be implied by 0.0505	
	M1	for standardising (allow any letter) and set = to z value $1.6 < z < 1.68$	
	B1	for awrt 1.64 seen	
	A1	For 3528 or 3530 only	

Question Number	Scheme		Marks
7(a)	$[S_{yy} =]9^2 \times 10 [= 810]$		M1
	$[S_{xy} =]0.8 \times "810" [= 648]$		M1
	$\sum xy = "648" + \frac{104.5 \times 113.6}{10}$		M1
	$= 1835.12$		A1
			(4)
(b)	$[S_{xx} =]9.3^2 \times 10 [= 864.9]$		M1
	$b = \frac{"648"}{"864.9"} [= 0.7492...] \text{ or } b = \frac{\left(\frac{"648"}{\sqrt{"810" \times "864.9"}}\right)^2}{0.8} [= .7492...]$		M1
	$a = 11.36 - "0.7492" \dots \times 10.45 [= 3.530...]$		M1
	$y = 3.53 + 0.749x$		A1
			(4)
NB Any solutions using Cov(x, y) Please send to review			
	Notes		Total 8
	Mark parts (a) and (b) together		
(a)	M1	for a correct method to find S_{yy} May be implied by 810	
	M1	for a correct method to find S_{xy} ft S_{yy} May be implied by 648	
	M1	for a correct method to find $\sum xy$ ft S_{xy} (may need to check this if no working shown)	
	A1	Allow $\frac{45878}{25}$	
(b)	M1	for a correct method to find S_{xx} May be implied by 864.9 May be seen in part (a)	
	M1	for a correct method to find b ft S_{xy} and S_{xx} or ft their S_{xy} , S_{yy} and S_{xx}	
	M1	for a correct method to find a ft their b Do not allow $b = 0.8$	
	A1	for $y = \text{awrt } 3.53 + \text{awrt } 0.749x$	