GCSE

Applications of Mathematics (Pilot)

Unit **A382/02:** Higher Tier

General Certificate of Secondary Education

Mark Scheme for June 2016

Annotations used in the detailed Mark Scheme.

Annotation	Meaning
✓	Correct
✗	Incorrect
BOD	Benefit of doubt
FT	Follow through
ISW	Ignore subsequent working (after correct answer obtained), provided method has been completed
M0	Method mark awarded 0
M1	Method mark awarded 1
M2	Method mark awarded 2
A1	Accuracy mark awarded 1
B1	Independent mark awarded 1
B2	Independent mark awarded 2
MR	Misread
SC	Special case
∧	Omission sign

These should be used whenever appropriate during your marking.

The **M**, **A, B**, etc annotations must be used on your standardisation scripts for responses that are not awarded either 0 or full marks.
It is vital that you annotate these scripts to show how the marks have been awarded.
It is not mandatory to use annotations for any other marking, though you may wish to use them in some circumstances.

Subject-Specific Marking Instructions

1.   **M** marks are for <u>using a correct method</u> and are not lost for purely numerical errors.
     A marks are for an <u>accurate</u> answer and depend on preceding **M** (method) marks. Therefore **M0 A1** cannot be awarded.
     B marks are <u>independent</u> of **M** (method) marks and are for a correct final answer, a partially correct answer, or a correct intermediate stage.
     SC marks are for <u>special cases</u> that are worthy of some credit.

2.   Unless the answer and marks columns of the mark scheme specify **M** and **A** marks etc, or the mark scheme is 'banded', then if the correct answer is clearly given and is <u>not from wrong working</u> **full marks** should be awarded.

    Do <u>not</u> award the marks if the answer was obtained from an incorrect method, ie incorrect working is seen <u>and</u> the correct answer clearly follows from it.

3. Where follow through (**FT**) is indicated in the mark scheme, marks can be awarded where the candidate's work follows correctly from a previous answer whether or not it was correct.

    Figures or expressions that are being followed through are sometimes encompassed by single quotation marks after the word *their* for clarity, eg FT 180 × (*their* '37' + 16), or FT 300 − √(*their* '5^2 + 7^2'). Answers to part questions which are being followed through are indicated by eg FT 3 × *their* (a).

    For questions with FT available you must ensure that you refer back to the relevant previous answer. You may find it easier to mark these questions candidate by candidate rather than question by question.

4. Where dependent (**dep**) marks are indicated in the mark scheme, you must check that the candidate has met all the criteria specified for the mark to be awarded.

5. The following abbreviations are commonly found in GCSE Mathematics mark schemes.

    -   **figs 237**, for example, means any answer with only these digits. You should ignore leading or trailing zeros and any decimal point eg 237000, 2.37, 2.370, 0.00237 would be acceptable but 23070 or 2374 would not.
    -   **isw** means **ignore subsequent working** after correct answer obtained and applies as a default.
    -   **nfww** means **not from wrong working**.
    -   **oe** means **or equivalent**.
    -   **rot** means **rounded or truncated**.
    -   **seen** means that you should award the mark if that number/expression is seen anywhere in the answer space, including the answer line, even if it is not in the method leading to the final answer.
    -   **soi** means **seen or implied**.

6. In questions with no final answer line, make no deductions for wrong work after an acceptable answer (ie **isw**) unless the mark scheme says otherwise, indicated by the instruction 'mark final answer'.

7. In questions with a final answer line following working space,

    (i) if the correct answer is seen in the body of working and the answer given on the answer line is a clear transcription error allow full marks unless the mark scheme says 'mark final answer'. Place the annotation ✓ next to the correct answer.

    (ii) if the correct answer is seen in the body of working but the answer line is blank, allow full marks. Place the annotation ✓ next to the correct answer.

       (iii) if the correct answer is seen in the body of working but a completely different answer is seen on the answer line, then accuracy marks for the answer are lost. Method marks could still be awarded. Use the M0, M1, M2 annotations as appropriate and place the annotation ✗ next to the wrong answer.

8.   In questions with a final answer line:

      (i) If one answer is provided on the answer line, mark the method that leads to that answer.

      (ii) If more than one answer is provided on the answer line and there is a single method provided, award method marks only.

      (iii) If more than one answer is provided on the answer line and there is more than one method provided, award zero marks for the question unless the candidate has clearly indicated which method is to be marked.

9.   In questions with no final answer line:

      (i) If a single response is provided, mark as usual.

      (ii) If more than one response is provided, award zero marks for the question unless the candidate has clearly indicated which response is to be marked.

10.   When the data of a question is consistently misread in such a way as not to alter the nature or difficulty of the question, please follow the candidate's work and allow follow through for **A** and **B** marks. Deduct 1 mark from any **A** or **B** marks earned and record this by using the MR annotation. **M** marks are not deducted for misreads.

11.   Unless the question asks for an answer to a specific degree of accuracy, always mark at the greatest number of significant figures even if this is rounded or truncated on the answer line. For example, an answer in the mark scheme is 15.75, which is seen in the working. The candidate then rounds or truncates this to 15.8, 15 or 16 on the answer line. Allow full marks for the 15.75.

12.   Ranges of answers given in the mark scheme are always inclusive.

13.   For methods not provided for in the mark scheme give as far as possible equivalent marks for equivalent work. If in doubt, consult your Team Leader.

14.   Anything in the mark scheme which is in square brackets […] is not required for the mark to be earned, but if present it must be correct.

Question			Answer/Indicative Content	Marks	Guidance	
					Content	**Levels of response**
1	**a**		12.5 [%]	**2**	**M1** for 8/64 [x 100] oe or figs 125 If **M0** then **SC1** for 8/32 x 100 oe or 8 /199 x 100 oe	Mark at the most accurate 25 [%] 4.02... [%]
	b		Sami is incorrect **and** 28/63 compared with 32/72 Eg both written as 4/9 or 0.44... or 44% or better oe	**3**	**M2** for Sami is incorrect and 28/63 & 32/72 with no or insufficient calculations or any other justification or calculations to find decimal or percentage or fractions with same denominator equivalents of 28/63 & 32/72 with no or incorrect conclusion Or **M1** for 28/63 **or** 32/72 identified If **M1** then also **SC1** for correct comment following comparison between two proper fractions with different denominators If **M0** then **SC2** for a correct comment following comparison between proper fractions 28/x & 32/y, x & y different integers, or between fractions 25/63 & 26/72 Or **SC1** for comparison between proper fractions 28/x & 32/y, x & y different integers, or between fractions 25/63 & 26/72	For 'Sami is incorrect' allow 'no' or 'they are the same' oe 1920 / 4320 or 2016 / 4536 Correct comparison implies finding equivalent fractions, decimals or % Eg 28/87 = 0.32... < 32/80 = 0.4 so Sami is correct scores SC2 Eg 28/87 = 0.32... & 32/80 = 0.4 scores SC1

Question			Answer/Indicative Content	Marks	Guidance	
					Content	**Levels of response**
	c		Correct comparisons from correct relevant calculation eg: 1.045 x 6.08 = 6.35 **&** 6.35 ≠ 6.19 1.028 x 6.08 = 6.25.. ≠ 6.19 6.08÷5.93 = 1.025.. **&** 2.5… ≠ 4.5 or 3.3 1.033 x 5.93 = 6.12 or 6.13 & 6.12 or 6.13 ≠ 6.08 1.045 x 5.93 = 6.19 or 6.20 ≠ 6.08 3.3 x 5.93 = 19 or 20 ≠ 6.08 – 5.93 4.5 x 5.93 = 26 or 27 ≠ 6.08 – 5.93 6.19÷6.08 = 1.018… **&** 1.8.. ≠ 2.8 or 4.5 4.5 x 6.08 = 27.[36] ≠ 6.19 – 6.08 2.8 x 6.08 = 17 ≠ 6.19 – 6.08	3	**M2** for correct relevant calculation evaluated without a comparison Or **M1** for correct relevant calculation: 1.045 x 6.08 or 4.5 x 6.08 or 1.028 x 6.08 or 2.8 x 6.08 or 1.033 x 5.93 or 3.3 x 5.93 or 1.045 x 5.93 or 4.5 x 5.93 or 6.08 ÷ 5.93 oe or 6.19 ÷ 6.08 oe If **M0** then **SC1** for calculations and comparisons from 2010 to 2012 eg (6.19 ÷ 5.93) [÷ 2] oe > a given % from table 5.93 x 1.033 x 1.045 = 6.40 > 6.19 oe	For comparisons allow ≠ or > or < as appropriate or given in words Allow all marks for correct alternative comparisons Allow their values rounded or truncated (6.08 – 5.93) / 5.93 [x100] (6.19 – 6.08) / 6.08 [x 100] If more than one comparison mark the best May be done in stages May be embeddded Condone for all marks values not given rot to nearest penny, but in correct range

Question			Answer/Indicative Content	Marks	Guidance	
					Content	**Levels of response**
2	**a**		Cycle by 69 miles or cycle by 110[.4]km oe	**4**	**M3** for 969 – (1440 x 5/8) or (969 x 8/5) – 1440 or Cycle <u>and</u> either 900 [miles] or 1550[.4] [km] Or **M2** for 1440 x 5/8 oe or 969 x 8/5 oe Or **M1** for 5/8 = 0.625 soi or 8/5 = 1.6 soi	69 [miles] or 110[.4] [km] For full marks accept if cycle & correct difference with units seen, but not both written on answer line 900 [miles] or 1550[.4] [km] Condone m for miles if clearly converting to imperial units
	b		Difficult to count that many Number has been rounded Too precise oe	**1**		Ignore irrelevant additional comments provided not contradictory Something to do with the counting or something to do with rounding / number being too precise

Question				Answer/Indicative Content	Marks	Guidance	
						Content	**Levels of response**
		c		700 000 or 705 000 or 710 000 nfww or a number in the range 704 000 to 710 000 inclusive rounded to the nearest hundred with working shown nfww	5	**M4** for 969 ÷ (π x 70 / 160 000) oe or (100000 x 969 x 8/5) ÷ (π x 70) oe or 700 000 to 710 000 with working shown Or **M3** for (969x8/5) ÷ (π x figs 7) oe or 969 ÷ (π x 70 / figs 16) oe or (100 000 x 969 x 8/5) ÷ 70 oe or (100 000 x 969 x 8/5) ÷ (35 x π) oe or (70 x π) ÷ (100 000 x 8/5) Or **M2** for π x figs 7 **and** 969 x 8/5 or (70 x π) **and** (100 000 x 8/5) or 969 ÷ (π x figs 7) or 100 000 x 969 x 8/5 or 1000 x 969 x 8/5 **and** 70 ÷ 100 Or **M1** for π x figs 7 or 969 x 8/5 oe or 100 000 x 8/5 oe or 70 ÷ 100 000 oe or 100 000 ÷ 70 Or **SC3** for *their* 1550[.4] [km] from part (a) ÷ (π x figs 7)	May be done in stages May be embedded FT their method if rounded or truncated Figs 705….. 2 214 857 1 410 021.85… 0.001374… π x 70 = 219.8 to 220 100 000 ÷ (π x 70) = 454.7 to 455 155 040 000 (70 x π) ÷ (100 000 x 8/5) = 0.00137 to 0.0014 100 000 x 8/5 = 160 000 70 ÷ 100 000 = 0.0007 100 000 ÷ 70 = 1428.57…

Question			Answer/Indicative Content	Marks	Guidance	
					Content	**Levels of response**
	d*		969 ÷ (9 x *their* hours) seen & evaluated where *their* hours 5 to 12 inclusive **and** assumption hours cycle per day stated & hours 5 to 12 inclusive

969 ÷ (9 x *their* hours) seen & evaluated where their hours within range 5 to 12 inclusive with no or incorrect or irrelevant assumption(s) Or 969 ÷ (9 x n) where 1≤ n ≤ 24 <u>and</u> assumption of hours per day in range 4 to 16 inclusive | **3**

2 – 1 | For lower mark assumption of hours per day in range 4 to 16 inclusive or 969 ÷ (9 x n) where 1≤ n ≤ 24

Ignore irrelevant assumptions provided not contradictory | For 3 or 2 marks must see their calculation For 1 mark if not assumption then must see calculation Answers rounded or truncated Hours do not need to be integers

12 hours: 8.972…mph 11 hours: 9.7878…mph 10 hours: 10.766…mph 9 hours: 11.96…mph 8 hours: 13.458…mph 7 hours: 15.38…mph 6 hours: 17.94…mph 5 hours: 21.53… mph

969 ÷ (9 x 24) = 4.486 to 4.5 969 ÷ 9 = 107.6 to 107.7 |
| **3** | **a** | **i** | Sketch cuboid(s) with dimensions 5.4   13.5   2.1 or 5.4   (4.5 [+] 4.5 [+] 4.5)   2.1

Sketch cuboid(s) with dimensions 16.2   4.5   2.1 or (5.4 [+] 5.4 [+] 5.4)   4.5   2.1 | **2**

2 | **M1** for [sketch &] dimensions 5.4 x multiple of 4.5 x 2.1 or sketch with any two dimensions 5.4   13.5   2.1 except 5.4, 4.5, 2.1

M1 for [sketch &] dimensions multiple of 5.4 x 4.5 x 2.1 or sketch with any two dimensions 16.2   4.5   2.1 except 5.4, 4.5, 2.1 | Integer multiple of 4.5 not 1 x 4.5

Integer multiple of 5.4 not 1 x 5.4

Sketch must be a cuboid |

Question			Answer/Indicative Content	Marks	Guidance	
					Content	**Levels of response**
		ii	Most regular or cube like oe Smallest surface area oe	1		Not smallest measurements oe Not smallest area If only calculations for SA seen then must see A 173.34 and SA for B & C and also A < B & A < C
	b		30 and dimensions 32.4 x 22.5 x 2.1 Accept dimensions shown on sketch	3	**M2** for 30 or arrangement 6 x 5 x 1 & no or incorrect dimensions given or correct dimensions with no or incorrect total or two correct calculations working towards arrangement 6 x 5 x 1, ie that fit 35.3 and 25 eg 35.3 ÷ 5.4 oe and 25 ÷ 4.5 oe or 28 with any correct arrangement eg 7(31.5) x 4 (21.6) x 1 (2.1) Or **M1** for one calculation towards dimensions that fit in 35.3 or 25 35.3 ÷ 5.4 oe or 35.3 ÷ 4.5 oe or 25 ÷ 5.4 oe or 25 ÷ 4.5 oe If **M0** then **SC1** for (35.3 x 25 x 2.5) [÷] (5.4 x 4.5 x 2.1) [=] 43	For correct arrangement accept 35.3 ÷ 5.4 & 25 ÷ 4.5 seen Or [5.4 x 6 =] 32.4 & [4.5 x 4 =] 22.5 Allow M2 if see calculations working towards either 30 and 28 where at least one of (6 and 5) or (7 and 4) is reached Allow M1 if see calculations working towards either 30 and 28 but neither (6 and 5) or (7 and 4) is reached Accept arrangements in a sketch or working towards dimensions that fit in 35.3, 25 & 2.5 For SC1 accept 2206.25 and 51.03 with final answer 43

Question			Answer/Indicative Content	Marks	Guidance	
					Content	**Levels of response**
	c		59.2[1...] Accept 59 with correct working shown	**3**	**M2** for $\sqrt{45^2 + 35^2 + 16^2}$ Or **M1** for $45^2 + 35^2 + 16^2$ If **M0** then **SC1** for 57.[..] or awrt 38.5 or awrt 47.8	FT their value if done in stages 2025 + 1225 + 256 = 3506
	d	**i**	$x + 2d \leq 104$ oe or $x + 2d < 104$ oe	**2**	**M1** for $x + 2d$	Condone use of L for x Allow other letters where defined Condone cm included Ignore correct irrelevant inequalities in one variable
		ii	7	**2**	**M1** for $(104 - 90) \div 2$	
		iii	2 x 90 > 104 oe or 104 ÷ 2 < 90 oe	**1**		May be given in words eg 2 x diameter is 180 contradicts the first rule Allow x shown to be negative value As a minimum allow 180 > 104
		iv	[0 <] d < 52 or [0 ≤] d < 52 or [0 <] d ≤ 52 or [0 ≤] d ≤ 52 or [0 <] d ≤ $51.\dot{9}$ or [0 ≤] d ≤ $51.\dot{9}$	**2**	**M1** for < 52 or ≤ 52 seen Or 2d < 104 oe or 2d ≤ 104 oe If **M0** then **SC1** for [0<] d ≤ 51.5 to 51.99…. Or [0≤] d ≤ 51.5 to 51.99….	Accept other letters if clearly defined

Question			Answer/Indicative Content	Marks	Guidance	
					Content	**Levels of response**
4	**a**		260 000	**1**		
	b		455 000 464 999	**2**	**B1** for 455 000 or 464 999 correct If **B0** then **SC1** then 455 000 and 464 999 reversed	Condone 465 000 for 464 999 for both 1 or 2 marks
	c	**i**	310 000	**1**		Condone 3 | 1
		ii	150 000 nfww	**3**	**B1** for 390 000 or 240 000 And **M1** for *their* 390 000 – 240 000 or 390 000 – *their* 240 000	Allow figs 39 or 3 | 9 & figs 24 or 2 | 4 for B & M marks 1 | 5 as final answer scores 2 marks max
5	**a**		4.464[205101..]	**2**	**M1** for 397[.17...] or 19.9... or 4.46 or 4.5	For … accept any number of additional figures for M1
	b		[4.46…] 4.8[1….] 4.9[0…] 4.9[2…]	**2**	**M1** for 4.8[1…] If **M0** then **SC1** for 4.90[…] **and** 4.92[…]	Award both marks if two or more values 4.9[...] provided also 4.8[1...] ignore further working If 4.8[1…] & one further value then award both marks if further value 4.90[…]

Question			Answer/Indicative Content	Marks	Guidance	
					Content	**Levels of response**
6	**a**		Fully correct with M, X, Y labelled and arc XC shown	**3**	**M2** for M correct position & arc XC shown, letters may or may not be shown or M, X & Y correct position, but no arc shown, may not be labelled Or **M1** for M correct position or *their* arc XC drawn with X & M on AB	Condone one letter missing for all marks If M missing must see clear blob
	b		5 : 8.2 ± 0.2 or 50 : 82 ± 2	**1 FT**		Accept 4.8 to 5.2 for 5 or 48 to 52 for 50 FT *their* AX ± 2mm if outside given range If simplified mark their unsimplified ratio & then isw Ignore units where the same
	c	**i**	5.590 [cm] or 55.902 [mm]	**3**	**M2** for $\sqrt{5^2 + 2.5^2}$ or $\sqrt{50^2 + 25^2}$ or $\sqrt{\text{their } AD^2 + \text{their }(\tfrac{1}{2}AD)^2}$ where *their* ½ AD rot to 2 sig figs Or **M1** for $5^2 + 2.5^2$ or $50^2 + 25^2$ or $\text{their } AD^2 + \text{their }(\tfrac{1}{2}AD)^2$ where *their* ½ AD rot to 2 sig figs	For M marks FT *their* values BC 4.8 to 5.2 & BM 2.4 to 2.6 If FT then award 3 marks if final answer given correct to 3dp with *their* AD and *their* (½AD) where *their* ½ AD rot to 2 sig figs
		ii	[1 :] 1.618[…] with working shown	**2 FT**	**M1** for (*their* 2.5 + *their* (c)(i)) ÷ *their* 5 Or *their* 5 : *their* 2.5 + *their* (c)(i)	Award both marks for 1 :1.6... provided method using (c)(i) seen FT working in other units

Question			Answer/Indicative Content	Marks	Guidance	
					Content	**Levels of response**
	d		12.3 to 12.4 Allow 12 nfww	**6**	**B5** for awrt 12 provided working shown & nfww **OR** **M1** for [MC] $\sqrt{5}^2 + 10^2$ or better or 10 x *their* (c)(i) ÷ *their* AD from (b) **AND** **B2** for 63 to 64 Or **M1** for $\tan^{-1}2$ oe or 26 to 27 **AND** **M2** for $\frac{their\ 63.43}{360} \times 2 \times \pi \times their\ 11.18$ oe Or **M1** for $\frac{their\ 63.43}{360} \times \pi \times their\ 11.18$ oe or $\frac{their\ 63.43}{360} \times \pi \times their\ 11.18^2$ oe or $2 \times \pi \times their\ 11.18$	Accept working in radians $\sqrt{5}^2 + 10^2$ x $\tan^{-1}2 = 12.37…$ 11.18 to 11.2 or $5\sqrt{5}$ If AD = 5 look for 2 x *their* (c)(i) Angle: look for trig function, but may be measured *Their* angle must be >0 and <90 For ***their*** radius look for some working - may be measured & accept radius > 10 and < 15 May be done in stages May be embedded If working in radians award M marks as appropriate Eg M1 for $\tan^{-1}2 = 1.10[7]$ to 1.11 M4 for $\sqrt{5}^2 + 10^2$ x $\tan^{-1}2$ M4 for $\frac{1.11}{360} \times 2 \times \pi \times 11.18$
	e	**i**	120	**1**		
		ii	125 to 131 inclusive	**1**		
		iii	Bell curve, may be skewed *their* (e) (i) labelled at peak on diagram, peak implies graph rises then falls	**1** **1**		Accept bell curve or frequency distribution or histogram with correct shape Ignore incorrect scale if *their* (e) (i) marked at peak

Question			Answer/Indicative Content	Marks	Guidance	
					Content	**Levels of response**
7	**a***		Awrt 66 [feet] with method shown, nfww	**6 – 5**	Two or more height sections found correctly	Condone missing or incorrect units in final answer provided working shown
			One height section found correctly If no working then look for 14.549... 23.004... 28.449....	**4 – 3**	For lower mark correct Pythagoras statement eg 117⅓ / $\sqrt{8^2+1}$ or $(8\,a)^2 + a^2 = (117⅓)^2$ Or correct trig statement that could lead to one height section found eg 117⅓ x $\cos(\tan^{-1}8)$ or 117⅓ x $\sin(\tan^{-1}1/8)$	Allow rounding or truncating of heights of sections, provided working shown Condone 117 or 117.3 used for hypotenuse for marks 1 to 5
			Hypotenuse each triangle 352/3 or 117⅓ **and** **either** Pythagoras used for one of the triangles eg $\sqrt{8^2+1}$ or $\sqrt{5^2+1}$ or $\sqrt{4^2+1}$ **or** use of trig to find one relevant angle in any of the three triangles eg $\tan^{-1}8$	**2 – 1**	For lower mark hypotenuse each triangle 352/3 or 117⅓ or Pythagoras used for one of the triangles eg $\sqrt{8^2+1}$ or $\sqrt{5^2+1}$ or $\sqrt{4^2+1}$ or use of trig to find one relevant angle in any of the three triangles eg $\tan^{-1}8$ If no working and answer 66 [feet] award **SC4**	May be done in stages May be embedded 117⅓ / $\sqrt{8^2+1}$ 117⅓ / 8.06... 117⅓ / $\sqrt{5^2+1}$ 117⅓ / 5.099... 117⅓ / $\sqrt{4^2+1}$ 117⅓ / 4.123... If working with trig look for angles: 82.9 & 7.1, 78.7 & 11.3, 76 & 14
	b	**i**	14 25 19 13 5	**3**	**M2** for 3 or 4 correct Or **M1** for 1 or 2 correct If choice & **M0** then **SC2** for all correct Or **SC1** for 3 or 4 correct	

Question			Answer/Indicative Content	Marks	Guidance	
					Content	**Levels of response**
		ii	Fully correct	3	**M2** for bars with all heights correct or at least 3 correct bars Or **M1** for all bars correct width or 2 correct bars or all correct heights within correct range indicated	Correct or FT their (b) (i) where at least 3 correct fd for all marks If all or most fd incorrect FT their table & 2 marks for 5 correct bars Or 1 mark for 3 or 4 correct bars eg by frequency diagram or crosses at all correct heights
		iii	54	3	**M2** for [28 +] 1.04/3 x 75 or [28 +] 26 Or **M1** for (15.04 – 14) / 3 If **M0** then **SC2** for 53 or (17 – 15.04)/3 x 75 + 57 + 65 + 75 oe Or **SC1** for 28 + (15 – 14)/3 x 75 or (17 – 15.04)/3 x 75 or (17 – 15)/3 x 75 + 57 + 65 + 75 oe	246 28 + 25 49 247
8	a		Graph: A Horizontal axis: Time Vertical axis: Sound/applause/volume/noise/ number of people applauding	2	**M1** for any two correct If **M0** then **SC1** for A with horizontal & vertical axis labels reversed	

Question			Answer/Indicative Content	Marks	Guidance	
					Content	**Levels of response**
	b		Graph: C Horizontal axis: Time or Year Vertical axis: Price Or Graph: D Horizontal axis: Time or Year Vertical axis: Rate of price increase	2	**M1** for any two correct If **M0** then **SC1** for C with horizontal & vertical axis labels reversed If **M0** then **SC1** for D with horizontal & vertical axis labels reversed	
	c	i	As time increases there are fewer empty seats oe	1		Ignore extra irrelevant comments that are not contradictory
		ii		1		
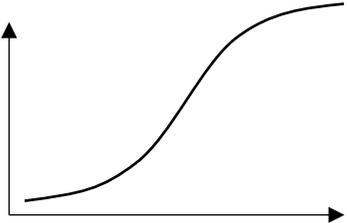
APPENDIX

Q8c i	Reason	Mark
Closer to the performance less empty seats		1
Seats all empty too begin with but steadily they filled up with a few to spare		1
As time gets closer to start more and more people fill the empty seats		1
As the number of empty seats decreased, time went on		1
Less people at the beginning as there were more empty seats but this decreased as show went on		BOD
The closer the performance the fewer empty seats		1
How seats fill as time progresses		0
More people arrive as time goes on		BOD

OCR (Oxford Cambridge and RSA Examinations)
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OCR Customer Contact Centre

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