

SULIT
1449/2(GMP)
Mathematics
Kertas 2 (Set 2)
Peraturan
Pemarkahan
2019

1449/2(GMP)



SKEMA PRAKTIS BESTARI

PROJEK JAWAB UNTUK JAYA (JUJ) 2019



MATHEMATICS

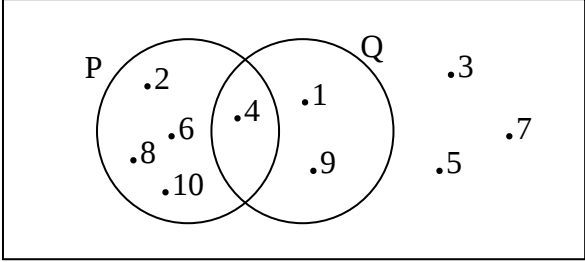
Kertas 2
SET 2

PERATURAN PEMARKAHAN

UNTUK KEGUNAAN GURU MATA PELAJARAN SAHAJA

YAYASAN
PAHANG

Peraturan pemarkahan ini mengandungi halaman bercetak
[Lihat halaman sebelah]

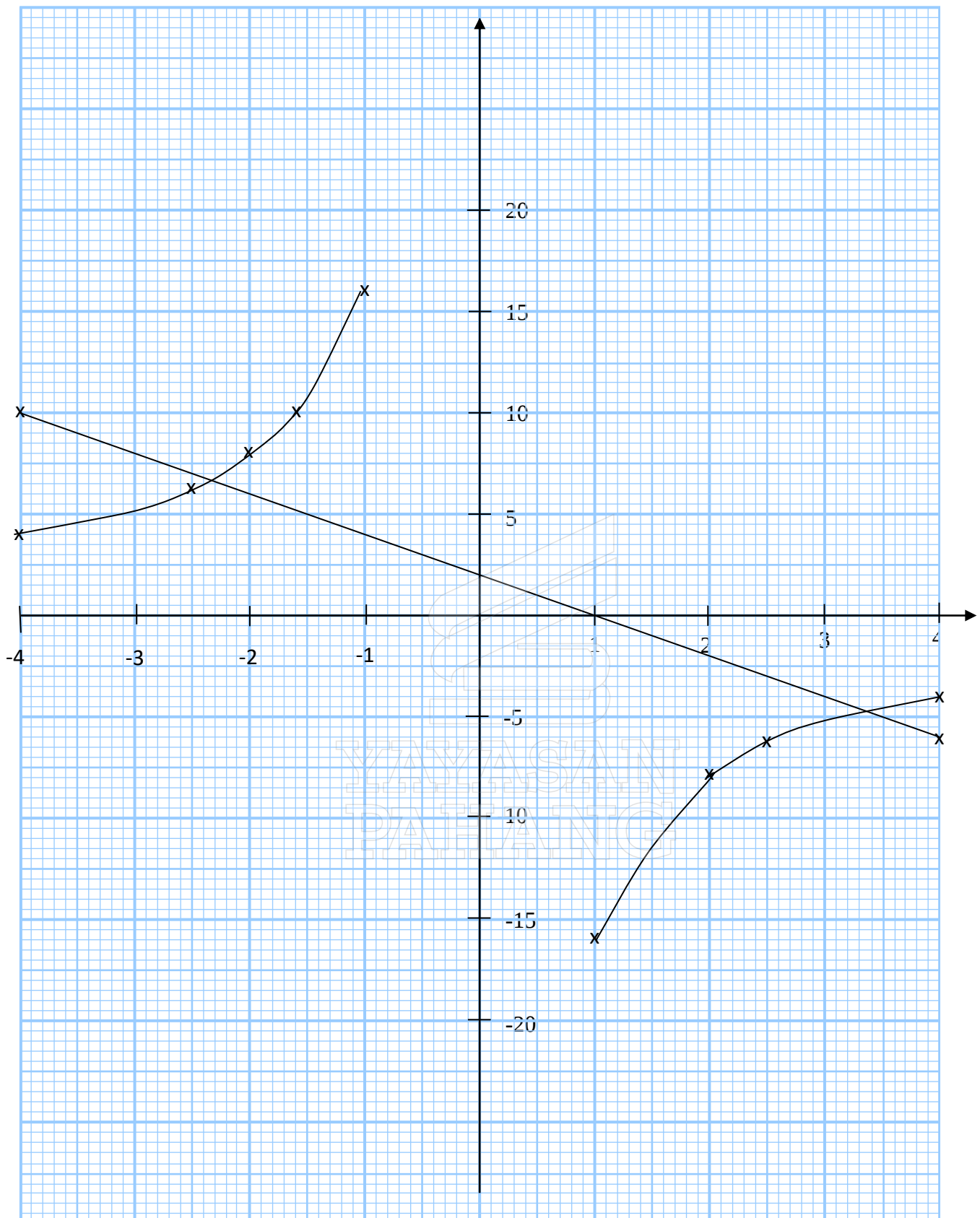
Question	Solution and Mark Scheme	Sub Mark	Mark
1	Venn diagram is drawn correctly	P1	3
		P2	
	All element labelled correctly <u>Note</u> : Allow two mistake in labelling the element for P1		
2	$2p^2 + 3p - 9 = 0$ $(2p - 3)(p + 3) = 0$ or equivalent $p = \frac{3}{2}$ $p = -3$ OR $\frac{-(3) \pm \sqrt{(3)^2 - 4(2)(-9)}}{2(2)} \quad (K1)$ or equivalent Note: 1. Accept whitout “=0” for K1 2. Accept three correct terms on the same side, in any order.	P1 K1 N1 N1	4
3	$x - y = 10$ or $4x + 6y = 78$ or equivalent $6x - 6y = 60$ or $4x + 4y = 40$ or equivalent $10x = 138$ or $10y = 38$ or equivalent $X = 13.80$ Note: Accept any variable / symbol	K1 K1 K1 N1	4

Question	Solution and Mark Scheme	Sub Mark	Mark
4	a)	K2	6
	$\frac{1}{2(-5)-(-3)(4)} \begin{pmatrix} -5 & 3 \\ -4 & 2 \end{pmatrix} \text{ or } \frac{1}{2} \begin{pmatrix} -5 & 3 \\ -4 & 2 \end{pmatrix}$		
	$\frac{1}{2(-5)-(-3)(4)} \begin{pmatrix} -5 & 3 \\ -4 & 2 \end{pmatrix} \text{ Seen award K1}$		
	b)	K2	
	$\begin{pmatrix} x \\ y \end{pmatrix} = \frac{1}{6(-2)-1(3)} \begin{pmatrix} -2 & -1 \\ -3 & 6 \end{pmatrix} \begin{pmatrix} 1 \\ 3 \end{pmatrix}$		
	$x = \frac{1}{3}$	N1	
	$y = -1$	N1	
5	$\frac{1}{2} \times \frac{22}{7} \times 2^2 \times 7 \text{ or equivalent}$ $7 \times 4 \times h \text{ or } 28h$ $28h + 44 = 212 \text{ or equivalent}$ $h = 6$	K1 K1 K1 N1	4
6	(a) False (b) Implication 1: if $k - 4 > 0$ then $k > 4$ Implication 2: if $k > 4$ then $k - 4 > 0$ (c) $3(n) + 2$; $n = 1, 2, 3, 4, \dots$	P1 P1 P1 K1N1	5

Question	Solution and Mark Scheme	Sub Mark	Mark
7	a) { (A 7),(R 7), (I 7), (F 7), (A 9),(R 9), (I 9), (F 9), (A 10),(R 10), (I 10), (F 10) } or equivalent	P2	
	<u>Note</u> : Allow two mistake in listing the sample space for P1		
	b i) (A 10), (I 10) $\frac{2}{12}$ or $\frac{1}{6}$	K1 N1	
8	ii) (A 7),(R 7), (I 7), (F 7), (A 9),(R 9), (I 9), (F 9), (R 10), (F 10) $\frac{10}{12}$ or $\frac{5}{6}$	K1 N1	6
	<u>Note</u> : Accept answer without working for K1N1 provided P2 obtained		
8	a) $x+2y = 10$ $y = -\frac{1}{2}x + 5$ $y = 5$	K1 N1	
	b) $3 = -\frac{1}{2}(8) + c$ $c = 7$	K1	
	$y = -\frac{1}{2}(0) + 7$ $y = 7$	K1 N1	
			5

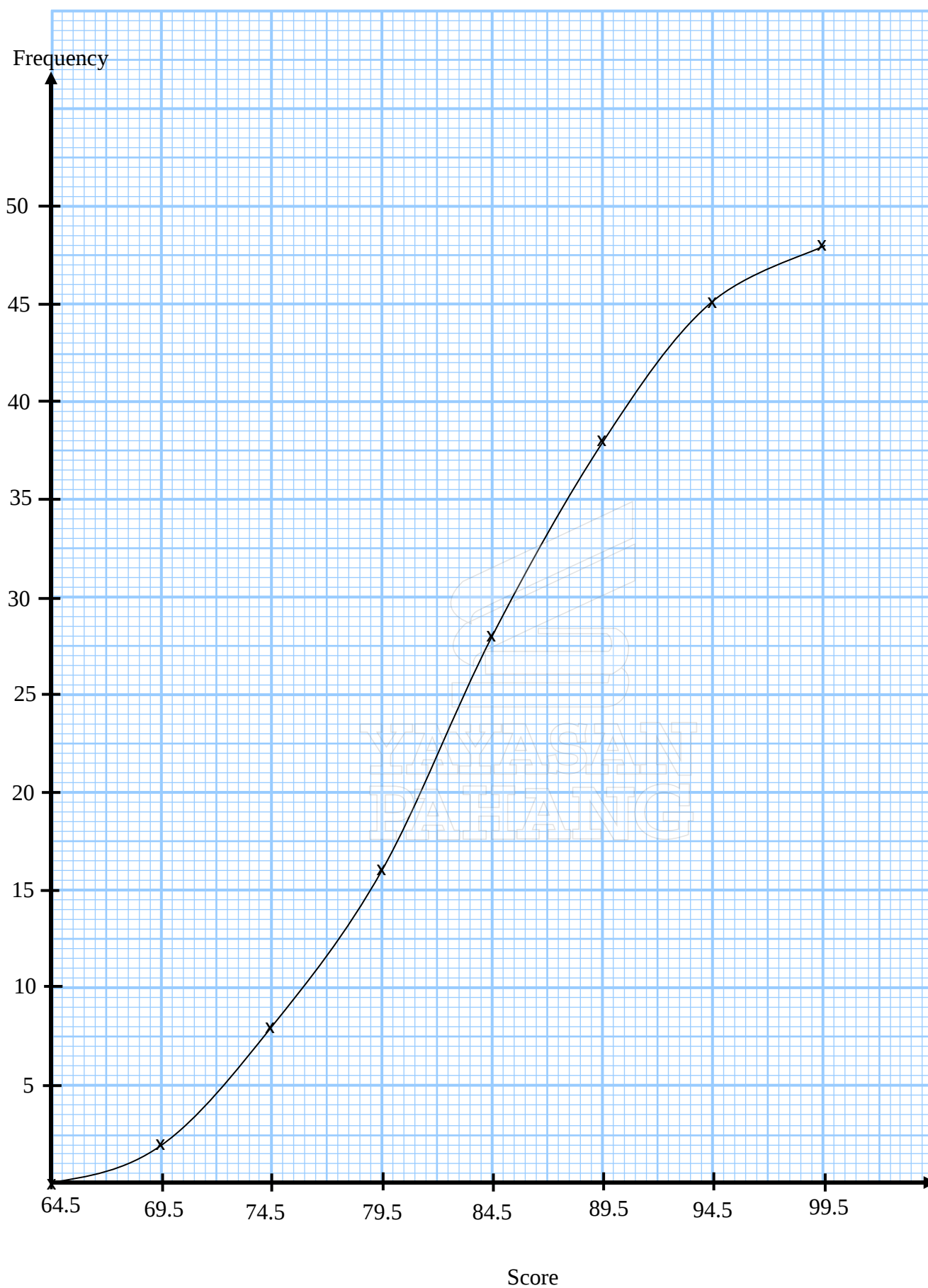
Question	Solution and Mark Scheme	Sub Mark	Mark
9	a) $2 \times \frac{22}{7} \times 7 \times \frac{135}{360} = \frac{33}{2}$ or $2 \times \frac{22}{7} \times 7 \times \frac{45}{360} = \frac{33}{14}$ or $2 \times \frac{22}{7} \times 4 \times \frac{180}{360} = \frac{44}{7}$	K1	
	$\frac{33}{2} + 4 + \frac{33}{14} + 3 + 3 + \frac{44}{7}$	K1	
	$35\frac{1}{7}$ or $\frac{246}{7}$ or 35.14	N1	
	b) $\frac{22}{7} \times 7^2 \times \frac{135}{360}$ or $\frac{22}{7} \times 2^2 \times \frac{180}{360}$ or $\frac{22}{7} \times 3^2 \times \frac{45}{360}$	K1	
	$\frac{231}{4} - \frac{44}{7} + \frac{99}{28}$	K1	
	55	N1	
			6
10	a) $\angle NHK$	P1	
	b) $Tan \theta = \frac{10}{5}$	K1 N1	
	$\theta = Tan^{-1} \frac{10}{5}$ $\theta = 63.43^\circ$		
			3
11	a) 72	K1	
	b) $\frac{0-8}{16-13} = -2.67$	K1N1	
	c) $\frac{1}{2} \times (8+v) \times 4 + \frac{1}{2} \times (12+9) \times 8 = 7.5$	K2	
	$v = 10$	N1	

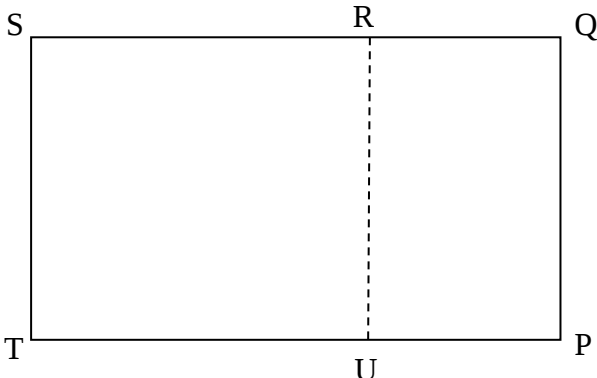
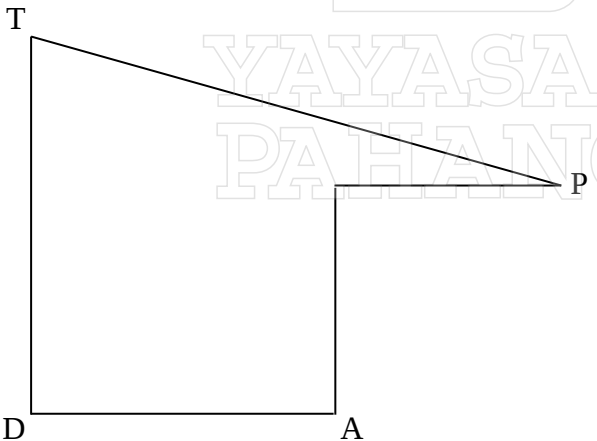
Question	Solution and Mark Scheme	Sub Mark	Mark
12	a) 4	K1	
	16	K1	
	b) <u>Graph</u> Axes drawn in the correct directions with uniform scales for $-4 \leq x \leq 4$ and $-16 \leq y \leq 16$.	P1	
	All 7 points and *2 points correctly plotted or curve passes through all the points for $-4 \leq x \leq 4$ and $-16 \leq y \leq 16$.	K2	
	<u>Note:</u> 7 or 8 points correctly plotted, award K1		
	Smooth and continuous curve without any straight line passing through all 8 correct points using the given scales.	N1	
	c) (i) $14.2 \leq y \leq 14.8$	P1	
	(ii) $-3.0 \leq x \leq -3.5$	P1	
	d) Straight line $y = -2x + 2$ correctly drawn.	K2	
	identify equation $y = -2x + 2$ award K1 $x = -2.45$ $x = 3.4$	N1 N1	
			12

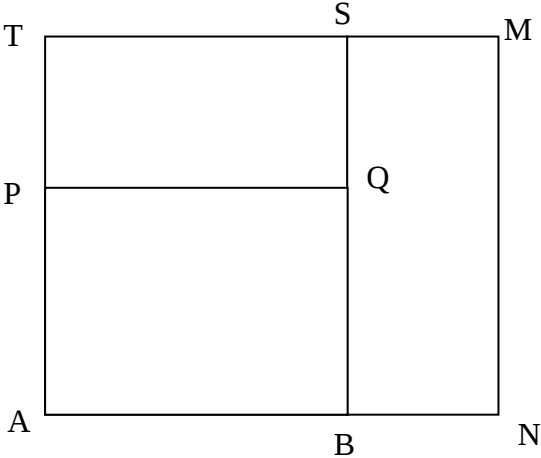


Question	Solution and Mark Scheme	Sub Mark	Mark
13	a) (i) $(-1,1)$	P1	3
	(ii) $(4, 3)$ Note: $(4,3)$ marked on diagram or $(-2, 3)$ seen or $(-2, 3)$ marked on diagram, award P1	P2	
	b) i) (a) $U = \text{Reflection at line AB}$ Note: 1. Reflection, award P1	P2	5
	(b) $V = \text{Enlargement, scale factor 3 centre A}$ Note: 1. Enlargement, centre A or Enlargement, scale factor 3 award P2 2. Enlargement, award P1	P3	
	(ii) $(20 \times 3^2) - 20$ or equivalent	K1K1	4
	160	N2	
			12

14(a)	(a) <table border="1" data-bbox="339 253 1185 629"> <thead> <tr> <th>Number of books</th><th>Upper Boundary</th><th>Frequency</th><th>Cumulative Frequency</th></tr> </thead> <tbody> <tr><td>60-64</td><td>64.5</td><td>0</td><td>0</td></tr> <tr><td>65-69</td><td>69.5</td><td>2</td><td>2</td></tr> <tr><td>70-74</td><td>74.5</td><td>6</td><td>8</td></tr> <tr><td>75-79</td><td>79.5</td><td>8</td><td>16</td></tr> <tr><td>80-84</td><td>84.5</td><td>12</td><td>28</td></tr> <tr><td>85-89</td><td>89.5</td><td>10</td><td>38</td></tr> <tr><td>90-94</td><td>94.5</td><td>7</td><td>45</td></tr> <tr><td>95-99</td><td>99.5</td><td>3</td><td>48</td></tr> </tbody> </table> Upper Boundary Cumulative Frequency $\frac{(67 \times 2) + (72 \times 6) + (77 \times 8) + (82 \times 12) + (87 \times 10) + (92 \times 7) + (97 \times 3)}{48}$ = 82.73 (c) <u>Ogive</u> Axes drawn in correct directions with uniform scale for $64.5 \leq x \leq 99.5$ and $0 \leq y \leq 48$ *8 points correctly plotted using correct values of Upper boundary and cumulative frequency. Note: *4 or *5 points correctly plotted, award K1. Correct ogive using the given scale. (d) (i) 88.5 (ii) 12 students obtained marks more than 88.5	Number of books	Upper Boundary	Frequency	Cumulative Frequency	60-64	64.5	0	0	65-69	69.5	2	2	70-74	74.5	6	8	75-79	79.5	8	16	80-84	84.5	12	28	85-89	89.5	10	38	90-94	94.5	7	45	95-99	99.5	3	48	P1 P2 K2 N1 P1 K2 N1 K1 N1	3 3 4 2
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Question	Solution and Mark Scheme	Sub Mark	Mark
15(a)	i)  Correct shape with rectangle PQST All solid lines. $SR > RQ$, $TU > UP$, $ST = UR = QP$ Dashed line UR Measurements correct to ± 0.2 cm (one way) and all angles at vertices = $90^\circ \pm 1^\circ$ ii)  Correct shape with DAUPT All solid lines. $DT > DA < AU = UP$ Measurements correct to ± 0.2 cm (one way) and all angles at vertices of rectangles = $90^\circ \pm 1^\circ$	K1 K1 K1 N1 K1 K1 N1	4 3

Question	Solution and Mark Scheme	Sub Mark	Mark
(c)	 Correct shape with trapezium TUPS <u>Note:</u> Ignore dashed line dashed line WU and WV. $TW = UV < VP < PS < SW$ Measurements correct to ± 0.2 cm (one way) and All angles at vertices of rectangles = $90^\circ \pm 1^\circ$	K1 K1 K1 N2	5 12
16(a)	(a) (ii) M(60°S,108°S) (b) $180 \times 60^0 = 10800$ (c) $750 = \theta \times 60 \cos 60$ $\theta = \left(\frac{750}{60 \cos 60} \right)$ $= 25$ Longitud K = $108^0 - 25^0$ $= 83^0$T (d) $120 \times 60 = 7200$ $= \frac{7200 + 752}{600}$ $= 13.25$		

