

**Edexcel International  
London Examinations  
IGCSE**

**IGCSE Mathematics (4400)**

**Mark Schemes for May 2004 examination session**

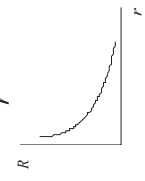
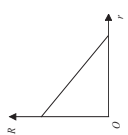
**Paper 3H (Higher Tier)**



No	Working	Answer	Mark	Notes
5	a prime factors 2 & 5 seen  b $2 \times 2 \times 2 \times 3 \times 5 \times 5$	$2 \times 2 \times 2 \times 5 \times 5$ or $2^3 \times 5^2$  600	2  2	M1 A1  M1 A1 for $2 \times 2 \times 2 \times 3 \times 5 \times 5$ or for lists of multiples with at least 3 correct in each list cao
6	a b $8 - 2 = 6$ & $5 - 1 = 4$ $6^2 + 4^2$ or $36 + 16$ or $52$ $\sqrt{6^2 + 4^2}$ or $\sqrt{52}$ (7.2110...)	$(5, 3)$  7.21	2 4	B2 B1 M1 M1 A1 B1 for each coordinate for squaring & adding (dep on 1st M1) for square root for 7.21 or better Either 6 or 4 must be correct for award of M marks
7	i ii iii	1, 3 1, 2, 3, 4, 5 "is a member of" oe	3	B1 B1 B1 Condone repetition Condone repetition
8	i ii $3x > -6$	$x > -2$ line to right of $-2$ indicated open circle at $-2$	4	M1 A1 B1 B1 SC if M0, award B1 for $-2$ ft from (i) line must either have arrow or reach 4 ft from (i)

No	Working	Answer	Mark	Notes
9	<p>a <math>\frac{16+8}{150}</math> or <math>\frac{24}{150}</math> or 0.16</p> <p>b <math>34 \times 2.5 + 48 \times 7.5 + 26 \times 12.5 + 18 \times 17.5 + 16 \times 22.5 + 8 \times 27.5</math> or <math>85 + 360 + 325 + 315 + 360 + 220</math> or 1665 "1665" <math>\frac{1665}{150}</math></p> <p>c</p> <p>d</p> <p>e cf of 75 (or <math>75\frac{1}{2}</math>) used</p>	<p>16</p> <p>11.1</p> <p>34, 82, 108, 126, 142, 150 Points Curve</p> <p><math>\sim 9</math></p>	<p>2</p> <p>4</p> <p>1</p> <p>2</p> <p>2</p> <p>4</p>	<p>M1 A1 M1 M1 M1 A1 B1 B1 M1 A1 M1 M1 B1 A1</p> <p>cao finds products <math>f \times x</math> consistently within intervals (inc end points) and sums them use of midpoints (dep on 1st M1) for division by 150 Accept 11 if <math>\frac{1665}{150}</math> seen cao <math>\pm \frac{1}{2}</math> square ft from sensible table or line segments (dep on 5 pts correct or ft correctly or 5 ordinates from (c) plotted correctly and consistently within intervals but not above end points) ft from sensible graph (dep) SC B2 for <math>3\pi</math> or 9.4247... seen (indep) for 21.4 or better (21.4247...)</p>
10	<p><math>\pi \times 12</math> or 37.6991... +4 + <math>2 \times 6</math> or +12</p>	21.4	4	

No	Working	Answer	Mark	Notes
11				
a		$1.5 \times 10^8$	1	B1 cao
b		$4.5 \times 10^9$	2	M1 A1 $4.5 \times 10^n$ for integer $n > 0$ for $n = 9$ SC B1 for $4.5^{09}$
12				
a	$4y = 3x - 15$ $y = \frac{3}{4}x - \frac{15}{4}$		3	M1 M1 A1 for $\frac{3x-15}{4}$ ft from $\frac{3x-15}{4}$
b	Eqn (A) $\times 3$ or Eqn(B) $\times 2$ eg or Eqn(A) $\times 5$ or Eqn(B) $\times 3$ Eqn (A) $\times 3 +$ Eqn(B) $\times 2$ eg or Eqn(A) $\times 5 -$ Eqn(B) $\times 3$ eg $x = 3$	$\frac{3}{4}$	4	M1 M1 A1 for clear attempt at first step in correct process to eliminate either or $y$ Completes correct process to eliminate either $x$ or $y$ (Condone one error) cao for non-eliminated one cao
13				
a		$(3, -1\frac{1}{2})$	2	B2 (B1 for 2 terms correct)
b	$6t + 8$	$3t^2 + 8t - 5$	2	M1 A1 for $6t + 8$ or $d(a)/dt$ if at least B1 scored ft
14				
ai		bar correct	3	B1 $28 \pm \frac{1}{2}$ sq
ii		130, 120	2	B2 M1 B1 cao for each value
b	$\Sigma f = 480, \frac{3}{4} \times 480 = 360$	2500		A1 ft from "480" ie $\Sigma f$

No	Working	Answer	Mark	Notes
15				
a	$6.805 \times 4$	27.22	2	M1 A1 cao
b	$6.815 \times 4 = 27.26$	27	2	M1 A1 cao
16			3	
	$(2x + 5)(x - 4)$ $(x + 4)(x - 4)$	$\frac{2x + 5}{x + 4}$		M1 M1 A1 cao
17			4	
ai	$R = \frac{k}{r^2}$	$R = \frac{3.6}{r^2}$		M1 A1
ii				B2 B1 for graph with negative gradient (increasing or constant) even if it touches or crosses one or both axes eg 
b		0.4	1	B1 ft from k

No	Working	Answer	Mark	Notes
18				
a	$3.6 \times 2.8 = 2.4 \times BE$ $\frac{3.6 \times 2.8}{2.4}$		3	M1 M1 Accept $AE \times CE = BE \times ED$
b	$3.6^2 + 2.4^2 - 4.9^2$ $\frac{2 \times 3.6 \times 2.4}{-0.3061}$	4.2	3	A1 M1 cao
19				
ai		108		A1 A1 at least 3 sf for 108 or better (107.826...)
ii		5	2	B1 cao
b	$\times 2 \rightarrow -1$ or attempt to make $x$ the $\div 3 \leftarrow +1$ subject of $y = 2x - 1$	0	2	B1 cao M1
ci		$\frac{x+1}{2}$ oe $\frac{3}{2x-1}$	2	A1 B1
ii		$\frac{1}{2}$		B1

