

**Edexcel International
London Examinations
IGCSE**

IGCSE Mathematics (4400)

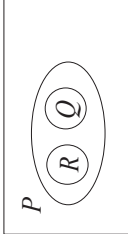
Mark Schemes for May 2004 examination session

Paper 4H (Higher Tier)

No	Working	Answer	Mark	Notes
1	$\frac{9.5}{3.8}$		2	M1 for 9.5 or 3.8 seen
2	4.5 oe seen $\frac{117}{"4.5"}$	2.5	3	A1 cao B1 M1 for $\frac{117}{\text{time}}$ eg $\frac{117}{270}$ A1 cao
3		26 $T = 40W + 20$ oe	2	B2 B1 for $T = \text{linear expression in } W$ B1 for $40W + 20$ oe
4	a b 5 x 156 or 780 "780" - "632"	632	1	B1 cao M1 M1 (dep M1) A1 cao
5	a b	40 80 75	2 1	B1 cao B1 cao B1 cao
6	a b	Rotation 90° (0, 0) or origin Correct image	3 2	B1 not "turn" B1 If 2 transfs given, B0B0B0 B1 B2 (B1 for 2 vertices correct)

No	Working	Answer	Mark	Notes
7	$\frac{12}{5} \times \frac{15}{8}$ or simpler inc $\frac{9}{2}$	$4\frac{1}{2}$	3	M1 Not 2.4 x 1.875 A1 Not 4..5 A1 cao
8	a b $v^2 = 2gh$	10 & 0.8 or 9.8 & 1 or 10 & 1 $\frac{v^2}{2g}$ oe	2 2	B2 B1 for 9.8 & 0.8 M1 A1
9	a b c d	n^4 p^7 q^4 f^3	1 1 1 1	B1 cao B1 cao B1 cao B1 cao
10	a bi	$\sin \angle PQR = \frac{4.7}{7.6} = 0.6184\dots$ 38.2 7.65 7.55	3 2	M1 for sin & $\frac{4.7}{7.6}$ or 0.6184... M1 $\sin^{-1}(0.6184\dots)$ May be implied A1 for 38.2 or better B1 Accept 7.649 B1 cao
11	$4x - 12 = 7x - 10$ $-12 + 10 = 7x - 4x$ or $-2 = 3x$	$-\frac{2}{3}$ oe	3	B1 for $4x - 12$ seen M1 A1

No	Working	Answer	Mark	Notes
12				
a	$\frac{12}{8}$ or 1.5 oe seen		2	M1
b	$15 \times \frac{2}{3}$	7.5 oe	2	A1 M1
c	$\left(\frac{3}{2}\right)^2$ or $\frac{9}{4}$ or 2.25 oe	10	2	A1 M1 cao
13	$a + 5 + 3a - 7 + 2a - 1 = 24$ $6a - 3 = 24$	135	3	A1 cao M1 M1 A1
14				
a	$\frac{1}{3} \times \frac{1}{3}$ or all 9 combinations shown eg 2 way table or list	$\frac{1}{9}$	2	M1
bi	$\frac{2}{3}$ on bottom LH branch rest of probabilities correct		9	A1 B1 B1 B1 M1
ii	$\frac{2}{3} \times \frac{2}{3} \times \frac{2}{3}$ EOE, EOO, OEE, OEO, OOE, OOO			A1 ft if 0 < probs < 1
iii	$\frac{1}{3} \times \frac{2}{3} \times \frac{2}{3}$ in any order or $\frac{4}{27}$ 3 correct paths identified	$\frac{8}{27}$ oe		M1 B1 M1 may be implied by next M1 or add 3 correct paths
	" 4 " $\times 3$	$\frac{4}{9}$ oe		A1 ft if 0 < probs < 1

No	Working	Answer	Mark	Notes
15	0.88 seen $\frac{726}{0.88}$	825	3	B1 M1 A1 cao
16			3	B3 B1 for each condition satisfied
17	$10x = 3.222\dots$	$\frac{29}{90}$	2	M1 A1 cao
18		$-18, (-2), 2, 0, -2, 2, 18$ Points plotted Curve $-0.7, 1, 2.7$	2 2 2 2	B2 for all correct (B1 for 4 or 5 correct) B1 $\pm \frac{1}{2}$ sq ft if at least B1 in (a) B1 ft if awarded B1 for points B2 ft if awarded \geq B1 in (b) (B1 for 2 correct) M1 eg line, mark on graph
19	indication that $y = 6$ used or $x^3 - 3x^2 + 2 = 6$ or $y = 6$ seen	3.4	2	A1 ft if awarded \geq B1 in (b)
a	$6p^2 + 15pq - 4pq - 10q^2$	$6p^2 + 11pq - 10q^2$	2	M1 for 3 terms correct
b		$8x^6 y^{12}$	2	A1 cao
c		$a^{-8} b^6$	2	B2 (B1 for 2 of 3 parts correct) B2 (B1 for one part correct)
d		$3p^2$	2	Accept $\frac{1}{a^8 b^{-6}}$ B2 (B1 for one part correct)

No	Working	Answer	Mark	Notes
20				
a	$\pi \times 3.7^2 + \pi \times 3.7 \times 8.3$	139 to 140	2	M1
b	$8.3^2 - 3.7^2$ or 55.2 $\sqrt{55.2}$ or $7.4296\dots$ $\frac{1}{3}\pi \times 3.7^2 \times 7.43$		4	A1 M1 M1 dep on 1 st M1 M1
21				
	$y = 6 - 2x$ $x^2 + (6 - 2x)^2 = 20$ $x^2 + 36 - 24x + 4x^2 = 20$ $5x^2 - 24x + 16 = 0$ $(5x - 4)(x - 4) = 0$	$x = 4$ and $x = \frac{4}{5}$ oe $x = \frac{4}{5}, y = 4\frac{2}{5}$ oe and $x = 4, y = -2$	7	A1 for 107 or better (106.512...) M1 for making y (or x) the subject M1 for substitution M1 for correct expansion A1 M1 A1 cao
22				
ai		$\mathbf{a} + \frac{1}{2}\mathbf{b}$ oe	3	A1 Must be in pairs One pair only, by trial & improvement, or without working, M0A0
ii		$\frac{1}{2}\mathbf{a} + \mathbf{b}$ oe		B1
iii		$\mathbf{b} - \mathbf{a}$ oe		B1
b	$\frac{1}{2}\mathbf{a} + \mathbf{b} - \mathbf{a} - \frac{1}{2}\mathbf{b}$ or $\frac{1}{2}\mathbf{b} - \frac{1}{2}\mathbf{a}$	$\overline{XY} = \frac{1}{2}\overline{OS}$	2	B1 Or equivalent. Must use vector not'n dep on 1st B1