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Mark Scheme (Results)
January 2007

GCE

O Level Mathematics B (7361_01)

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7361 Paper 1 Mark Scheme
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1.	Attempt at factorizing	M1		
	$(3x - 2)(x - 1)$	A1	2	**2**
2.	Line drawn to represent the correct range	B1		
	Correct symbol for end point, correctly placed	B1	2	**2**
3.	(a) 0	B1		
	(b) 2	B1	2	**2**
4.	$x(1 - x^2 - 3x)$ o.e.	M1		
	$x - x^3 - 3x^2$	A1	2	**2**
5.	$\begin{pmatrix} -9 & 10 & 7 \\ 19 & 2 & 19 \end{pmatrix}$	B2 (-1 eeoo)	2	**2**
6.	Differentiating, one term correct	M1		
	$\frac{2x}{3} + \frac{6}{x^3}$	A1	2	**2**
7.	$5 - 3 + 3\sqrt{5} - \sqrt{5}$ (1 sign slip)	M1		
	$2 + 2\sqrt{5}$ (cao)	A1	2	**2**
8.	Attempt at a vertical line through or meeting the midpoint of the (imaginary) line joining *A* and *B*	M1		
	Accurate vertical line, passing through the midpoint of the (imaginary) line joining *A* and *B*	A1	2	**2**

9.	Either $4x = y - 1$	M1		
	or $4y = x - 1$ which has followed the statement: $x = 4y + 1$			
	$\frac{x-1}{4}$	A1	2	**2**
10.	Using 5^2 x 15	M1		
	$\frac{(\pi) \text{ x } 5^2 \text{ x } 15}{(\pi) \text{ x } 10^2}$	M1 (DEP)		
	3.75	A1		**3**
11.	(a) 671.392	B1	1	
	(b) 6.71392×10^2	B1 ft	1	
	(c) 671.4	B1 ft	1	**3**
12.	$(AC =) 3$ or $(CB =) 2$	B1		
	$\frac{1}{2} \times 3 \times 2$	M1		
	$\Delta ABC = 3$	A1		**3**
13.	Any **other** correctly determined angle, with reason	B1		
	Any angle which is **one** step away from finding the required angle, with reason	B1		
	$\angle DFE = 60^o$	B1	3	**3**
14.	$\begin{pmatrix} 4 \\ -6 \end{pmatrix} - \begin{pmatrix} 1 \\ 3 \end{pmatrix}$	M1		
	$\begin{pmatrix} 1 \\ -3 \end{pmatrix}$	A1, A1	3	**3**

15. Attempt at balancing equations M1

Correct decision to add or subtract M1 (DEP)

$x = 5,\ y = -3$ A1, A1 **4**

16. $\sqrt{(10^2 + 5^2)}$ (= 11.18) M1

Either π x 5 x c's(11.18) or $\pi . 5^2$ M1

π x 5 x c's(11.18) + π x 5^2 M1(DEP)

254 A1 **4**

17. $-4 < 3x$ M1

$3x \leq 3$ M1

$x > -\frac{4}{3},\quad x \leq 1$ A1, A1 **4**

18. (a) $100 \times \left(\frac{100}{78}\right)$ (o.e) M1

128.21 A1 2

(b) c's(128.21) x $\frac{60}{100}$ M1

76.93 A1 2 **4**

19. (a) Using $\sqrt{2}$ M1

$\frac{\sqrt{2}}{\sqrt{3}}$ A1 2

(b) $\frac{1}{\sqrt{2}} \Big/$ c's(a) M1

$\frac{1}{\sqrt{2}}$ x $\frac{1}{\text{c's(a)}}$ M1 (DEP)

$\frac{\sqrt{3}}{2}$ A1 3 **5**

20.	(a) $(x - 5)x + 4$		M1		
	$x^2 - 5x + 4$		A1	2	
	(b) $(x - 4)(x - 1) = 0$		M1		
	4, 1		A1, A1	3	**5**
21.	(a) *A* correctly placed and labelled		B1	1	
	(b) $\sqrt{(6^2 + 4^2)}$	(o.e)	M1		
	7.21		A1	2	
	(c) $\tan\theta = \frac{4}{6}$	(o.e.)	M1		
	33.7		A1	2	**5**
22.	(a) $\frac{1}{2} . 2x . x + 7$		M1		
	$x^2 + 7x$		A1	2	
	(b) Either $4 . \frac{1}{2} . 2x . x + 7$ or 4 x c's(a)		M1		
	$4x^2 + 28x - 240$ (= 0)	(o.e.)	A1		
	$(x + 12)(x - 5)$ Solving a trinomial quadratic		M1		
	5	(cao)	A1	4	**6**
23.	(a) 3		B1	1	
	(b) $\frac{10}{40}$	(o.e)	B1	1	
	(c) $\frac{8}{40} \times \frac{3}{40}$		M1		
	$\frac{3}{200}$	(o.e)	A1	2	

	(d)	$\frac{8}{40}\times\frac{3}{40} + \frac{3}{40}\times\frac{8}{40}$	(o.e)	M1		
		$\frac{3}{100}$	(o.e)	A1	2	**6**
24.	(a)	$v = 50 - 10t$		M1		
		$50 - 10 \times 4$		M1 (DEP)		
		10		A1	3	
	(b)	c's$(50 - 10t) = 0$		M1		
		$50 \times$ c's$(5) - 5 \times$ c's$(5)^2$		M1 (DEP)		
		125		A1	3	**6**
25.	(a)	A: 1, 6,9 B: 9, 10 C: 3, 6, 10, 11 D: 4, 6, 11		B3 (-1 eeoo)	3	
	(b)	8		B1	1	
	(c)	6, 7, 8, 9		B1 ft	1	
	(d)	1, 9		B1 ft	1	**6**
26.	(a)	$\frac{32}{2\pi}$ (= 5.093)		M1		
		π x c's$(5.093)^2$ x 10 (= 259.4π)		M1		
		$\frac{7}{32}$ x c's(259.4π)		M1(DEP)		
		178.3 $\rightarrow$ 178		A1	4	
	(b)	$\frac{178.3}{259.4\pi}$ x 100	(o.e)	M1		
		21.8 % or 21.9%		A1	2	**6**

27. (a) $\sin 60 = \frac{BC}{10}$ ($BC = 8.660$) M1

$\frac{BD}{8.660} = \tan 40$ (o.e) M1 (DEP)

7.27 A1 3

(b) $\cos 60 = \frac{AB}{10}$ ($AB = 5$) (o.e.) M1

$\tan \angle BAD = \frac{\text{c's(a)}}{\text{c's(5)}}$ (o.e.) M1 (DEP)

55 A1 3 **6**