OCR

A Level

A Level Maths

OCR Core Maths C2 June 2012 Model Solutions

Name:



Mathsmadeeasy.co.uk

Total Marks:

	CR Jun 12 CZ
	O O (C) A C C
1: $(3+2x)^5 = 3^5 + 5(3^4(2x) +$	The state of the s
$+ {}_{2}C^{3}3_{3}(5^{x})_{3} + {}_{2}C^{n}3(5^{n})_{3}$	$(5^x)_{+} + (5^x)_{2}$
7 3	u -
= 243 + 810x + 1080x 2 + 720x3	+ 340x + 32x3
lii. (3-2x) = 243 -810x + 1080x -720x3	+ 240x - 32x5
$(3+2x)^5 + (3-2x)^5 = 486 + 2160x^2 + 480x^4$	
2: $\int x^2 - 2x + 5 dx = \frac{1}{3}x^3 - x^2$	+5× + c
$y = \frac{1}{3}x^3 - x^2 + 5x + c$	
The state of the s	
$\frac{11 \div \frac{1}{3}(3)^3 - 3^2 + 5(3) + c}{3}$	
11: 9-9+15+0 0:-4	
y : 1x3-x2 15xc-4	-
	-

-	
	3: T = 180°
_	2π · 72° 5
	5
_	3_{ii} $A = \frac{1}{2}r^2 \emptyset$
	$LST^{2} = \frac{1}{2}r^{2} \frac{2\pi}{5} = 7 r = 15 cm$
	2 5
	3. A of $\Delta : \frac{1}{2}(15)(15)\sin\left(\frac{2\pi}{5}\right)$
_	÷ 106.99
	A of seg. $\mu 5\pi - \Delta = 3\mu \cdot \mu cm^2 (3 s.f.)$
	4. $4\cos^2 x + 7\sin x - 7 = 0$
_	use $\cos^2 x = 1 - \sin^2 x$
_	4 - 4 sin x + 7 sin x - 7 = 0
-	, ₂
-	4sin2x - 7sinx + 3 = 0
_	
	$(L_{sinx} - 3)(sinx - 1) = 0$
_	T
-	$\sin x = 1$ $\sin x = 3/\mu$
-	
-	x: 90° x: 48:59°
_	131.41°
	1

$5a$ u_{n_1} = $\frac{2}{u_n}$
i) U, = 4 U2 = 1/2 U3 = H
ii) periodic / oscilating
111 periodic 1 oscilating
5b Ug = a + 8d = 18
$S_q = \frac{9(\alpha + 18)}{2} = 72$
9a + 162 = 144
9018
Q = -2
18:-2+88
8d · 20 => d = 5/2
x f(x)
6. \\ 4\\\ \ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\
٤, 5 4,55 2
73 9 12 .
[2 (4) { (4+12) + 8N5 } = 2(16+815): 32+16N5
trapozia bolow
Frapazia Caron
bii.
1 1 1/2 1
b_{ii} $L \times 2 dx = \frac{8}{3}x^{12}$
7 77 - 8
72-8
. 200
3
Mutilo Mude Eddy & Complete Tultion Eta 2017

7ai. tand = 2 h	
5 0 2 29	
h ~	
$\cos \alpha = \frac{5}{\sqrt{29}}$	
1/29	
$\frac{711}{7}$ $\sin \beta = \frac{3}{7}$; $\sin^2 \beta = \frac{9}{49}$	
7 49	
use sin 3 = 1 - cos B	
1-603 B = 9	
49	
cos B: 110	
49	
eos B = [40 : 1/40]	
eos B = 40 : 540 N 49 7	
76. siny = sin 60	
6 8	
siny = 6 sin60	- 1
8	
: 313	
: 313	

	•
8:.	$f(x) = x^3 + (\alpha - 3)x + 2b$
	$g(x) = 3x^3 + x^2 + 5ax + 4b$
	2(1)
	$f(2) = 2^3 + 2(\alpha - 3) + 2b$ 0: $2 + 2\alpha + 2b = 2$ $\alpha + b = -1$ 0
	0: 2 + 2a + 2b =
	$g(2) = 3(2)^3 + 2^2 + 10a + 4b$
	0 = 28 + 10 a + 46 => 5a + 2b = -14 @
	2a + 2b = -2 Ox2
	3a:-12
	a = -4 , b = 3
8;	$f(x) : x^3 - 7x + 6$
	f(1) = 0
	= (x-2)(x-1)(x+3)
	$g(x) = 3x^3 + x^2 - 20x + 12$
	7(-3)
	$g(-3) = 0 \Rightarrow x+3 \text{ a factor}$
	q(x) : (x-2)(x+3)(3x-2)
	herce common factor of (x+3)

9a: Un = log, 27 + (n-1) log e x
Un : log, 27 + 3 log, x
· log227 + logex3
= log (27 x3)
9a:. 6 = log, (27x3)
$6L : 27x^3 \Rightarrow x = \frac{\mu}{3}$
96: a: log. 27 r: log. y
500 valid for llog, y / < 1
log2 y < 1 - log2 y < 1
y < 2 log.y > -1
y > 1/2
2 9
96:. 500 = 3 = log. 27
1 - log : 9
3-3log, y, log, 27
3 = log, 27 y ³
8 = 27y3
y · 2/3