Start here for Question Number: 5

Question Number:

5 gi) area of sircle = TT?

volume of cylinder = TCr2 x h

10 = TCr2 × h

 $A = 2\pi r^2 + 2\pi r h$

sub h= Ter in 1

:. $A = 2\pi r^{2} + 2\pi r \left(\frac{10}{\pi r^{2}}\right)$ = $2\pi r^{2} + \frac{20\pi r}{\pi r^{2}}$ = $2\pi r^{2} + \frac{20}{r}$

ii) stationary minimum value occurs when A'=0 & A">0.

 $A' = 4\pi r - 20 r^{-2}$

= 4TT - 20

r (411 4TT - 72 =0

x r2 > 4 11 1 20 = 0 4 11 = 12

4(1113-5)=0 1=4212

Γ = πι

r3 = 5

Question 5	2010 HSC_Mathematics	Band 4/5 Sample 3
	xais+1	- Campio
bi). sec2 x + s	ecx tanx = cos2x	
LHS = Sec2 x +	sera tona	
= Sec2 x	+ Secx Sinx	
	COSX Sinx	
= (cos2x +	ginz	
(05-), +	(05-1	
		80 5 1
ltsinx		Z / 53 J2 45 1
= l+sinx cos²x		(00 d (05 t)
- DI16		' '
= RHS		
(1) Spr2 x 1 5 6	ex tanx = I-sinx	
117. 246 7 + 26	CX (GIIX 1 SIIX	
LHS = sec x	tsecx tanx	
	t from i.	
= 1+ sir	$\frac{1}{12x} \frac{x}{\text{from}} \Rightarrow \sin^2 x + \cos^2 x$	
(175'H)) From -> SIN'X +COS'X	. =1
= (1 + sinx)(1-sinx) 3 cos² x	x 2 nie -1 = 1
1		
= I-sinx		
:(1). So 1-sin		
:(i) Jo 1-sin	x dn	
= 0 0002 7	+ secz tanz dz	
2 260 3	TV	
= [tanx + st	ecx 7.4	(05 45 : 12
721 100		C = #
= [Ctan 4 + St	2c 7) - (tan 0 + sec 0)]	1 H
=[(1 + 45)-	- 90 7	34c : JE
[]	(6)	
=-44		
100 to 10		

	Sample	; 3
c). 2 = 5 ± dx + 5 ± dx	¥	
	A, ± 1	
2 = [Inx] + [Inx]b,	Az=1 : A+Az=2	
2 = [(In1-Ina)]+[Inb-In1]		
2 = Ina + Inb		

