Start here for Question Number: 5

(;).A = 2 TV 2 + 2 TV h.

V= Tr2h.

10 = xr2h.

h = 10

Sub into A.

A = 2 xx = + 28y (10)

A= 27/2+20, as required

(ii) A= 2Tr 2+20

 $\frac{dA}{dr} = 4\pi r + \frac{20}{r^2}.$

let dA = 0.

4AV = 20

4Tr3 = 20.

Tr3 = 5.

r3= 5

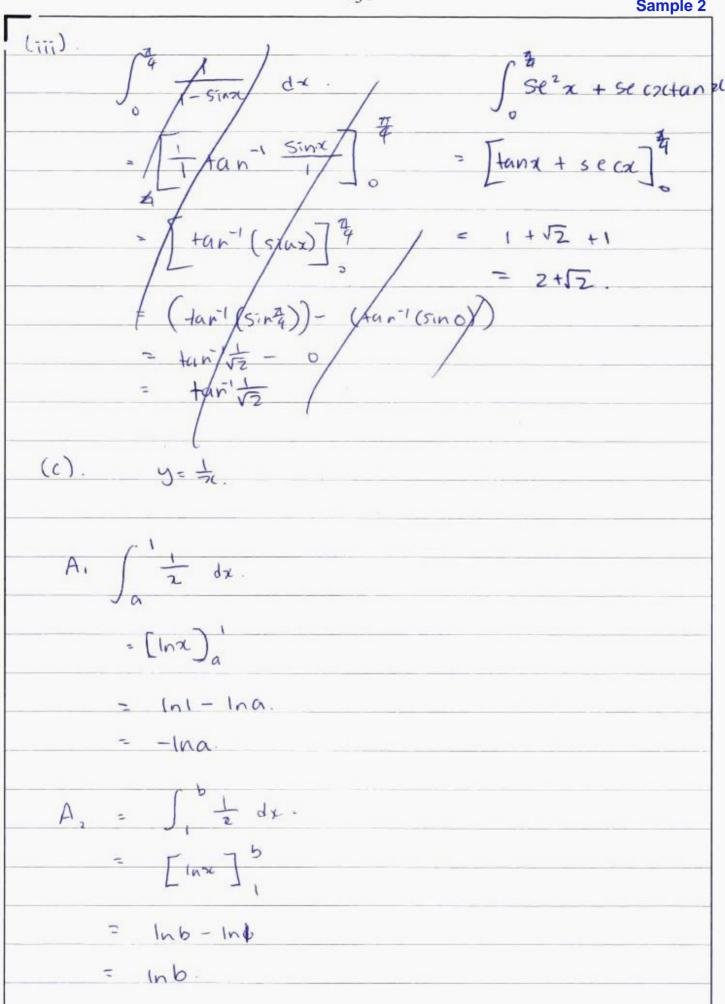
r= 5

r=1.261566261

V=1.26 (2dp)

P	1	1-26	2
dA	-7.4	0	20:13
-	1		

i r= 1.26 is a minimum.
(b): Sec2 x + sec >c +anx = 1+ 5:nxl
Cos² x.
& LHS= Se C2 x + Se Cx tanx
= 1 + 1 . tanx.
$= \frac{1}{\cos^2 x} + \frac{\sin x}{\cos x}$
= 1 sint Costx
Costx Costx
$= \underbrace{1 + \sin \lambda}_{\cos^2 \chi}$
ωs²χ
= 12H5.
(17). Se (22 + Sec2 + and = 1- sinx.)
1 + 5inx = 1 = 1+Anx
652 × 1-51mx. 6654.
LHS = 1+/sinc = 1+sint =
4052 × 1+5161
$= \frac{1 + \sin x}{(1 + \sin x)} = \frac{1}{(1 + \sin x)}$
(1-5122 = 1 1-512, as required)
Tuys" x
E/ Joseph
ups 24 / Coing.
= Secr 0 + Sinh Additional writing space on back page.
Additional writing space on back page.



You may ask for an extra Writing Booklet if you need more space to answer question 5.



Start here.

area of Mai OPTQ

Area of Shadod region = Aorra - Aora

$$= 10\sqrt{14} - 22.5$$

Start here.

Inb - Ina = 1

= log, a

Interlation 1.