1)	Derivatives Applications		
1)	x+y=54		
	x = 54 - y		
	$p(x, y) = x \cdot y$		
	p(y)=(54-y). y		
	y <sup>2</sup> +54y		
	P'(y)=-2y+54		
	0==2y+54	0.016 10 C 20 C	
	2y=54		
	y=27	ATT OF THE REAL PROPERTY.	
	- 56 - 51		
	x = 54 - 97		
	=27	+ A 1 A 1	
	the two numbers	W. Carlotta A. Suran	
	ale 27 and 27	10 KIN E - 1 &	
	0110	A SELECTION OF	
2)	Let y represent the sum of the squares		
	1	A Sub in extremes since o	= 2 = 3
	$y = x^{2} + (30 - x)^{2}$ $y = x^{2} + (30 - x)^{2}$ $y = (30 - x)^{2}$ $y = (30 - x)^{2}$	$y = n^{2} + (30-2)^{2}$ $= 15^{2} + (30-15)^{2}$	
	$y' = 2x + 2(30-x)(-1)$ = $0^2 + (30-0)^2$	= 192+(30-15)2	
	=2x-60+2x = 900	7450	
	= 470-60	K minimum su	m
	$y = \chi^{2}(30-\chi)^{2}$	A Total of the second	
	$0 = 4\pi - 60$ $= 30^{2} + (30 - 30)^{2}$	and the second	
	$n = 15$ = 900 $\leftarrow$ maximum	sm	

,	5) 101	resent the length of one	of the sides	
	THE WYCH	resent the length of one		
5	A = 2 · x	· \152-x2		
5	$A' = \frac{-2\pi^2}{-2(225)}$			
	-2(225	5-22) 1		
	0 7 2 2	105	131	
-	$0 = -2x^2 + 2$ $x = \sqrt{\frac{15}{2}}$	225		
	72		Para de la provincia de la companya della companya de la companya de la companya della companya	
	A = 2 · 15	$15^2 - (\frac{15}{\sqrt{2}})^2$		
	= 56.25			
2		15	Alaman Alaman	
2	56.25 × 2 ÷	100		
	- V2			
	in the las	raest possible area is	56.25cm2 with dimensions of t	5 × 15
	4) let x repl	resent one dimension of	the rectangle.	
	f(z)= 3x.	2(194)		
		+ 2 ( » )		
	-3x+	N		
	= 3x+	368 x2		
	f'(x) = 3x +	368 22		
D D D	f'(x) = 3x +	368 22	re only interested in	
	f'(x) = 3x +	$\frac{368}{\pi^2}$ $\frac{368}{\pi^2}$ $\frac{4\sqrt{69}}{\pi^2}$ Reject, we go mag	re only interested in gnitude.	
		$\frac{368}{\pi^2}$ $\frac{366}{\pi^2}$ $- OR - \frac{4\sqrt{9}}{3}$ Reject, we go mag	re only interested in gnitude.	
7	$= 3x + \frac{1}{5}(x) = 3 - \frac{3}{5}$ $0 = 3 - \frac{3}{5}$ $x = \frac{4 \cdot 169}{3}$ $f(x) = 3x + \frac{1}{5}$	$\frac{368}{\pi^2}$ $\frac{368}{\pi^2}$ $- 0R - \frac{4169}{3}$ Reject, we give mag	re only interested in gnitude.	
	$= 3x + \frac{1}{5}(x) = 3 - \frac{3}{5}$ $0 = 3 - \frac{3}{5}$ $x = \frac{4\sqrt{69}}{3}$ $f(x) = 3x + \frac{4\sqrt{69}}{3} = 3$	$\frac{368}{\pi^2}$ $\frac{366}{\pi^2}$ $- OR - \frac{4\sqrt{9}}{3}$ Reject, we go mag	re only interested in gnitude.	

	0
5) R = (10 - V10000 + 100000)	
5) $R = (10 - 0.25\pi)(10.000 + 1000\pi)$ $R = -250\pi^2 + 7500\pi + 100000$	
R = -250 x + 1500 x + 1500 x	
V) - 900% + 1300	
0=-500 x +7500	
500× = 7500	
N=15	
B = (10-0.25(15))(10000 + 1000(15))	
=156250	
70000	
10+15.0.25 = 13.75	
in the second of	0
a price of \$13.75 will yield the highest revenue of	
#156250	
6) $A = \overline{z}ab \sin\theta$	
$A' = \frac{1}{2} ab \cos \theta$	
0= = abcoso	1
c050 = 0	
$\theta = \cos^{-1}(0)$ $= 90^{\circ}$	
= 90°	
in an angle of 90° between them will maximize the area	1
1) $A = 2x(3-x^2)$ = $2x$ because it's width goes into negative side too $= 16x - 2x^3$	
$A = 2\alpha(3-\alpha) = 2\alpha$	
$=16\chi - 2\chi$	
$A' = 16 - 6\pi^2$	
0 1/ /-/2	
$0 = 16 - 6\chi^2$ $\chi = \frac{2\sqrt{6}}{3}$	-
$\chi = \frac{210}{3}$	

0	
8)	SA=2πχ²+(800÷πχ²) SA'= 4πν-1600÷πχ³
	SA'= 4πχ-1600 - πχ3
	$0 = 4\pi \times -1600 = \pi \times^3$
	X = 2/5-1
	800= T (25E)2h
	h = 40
	11-10
	· la man the and for land and it will be a
	in to minimize the amount of materials needed, it will have a
	radius of 215 to mand a height of 40 cm