

.() - x

15% - ,

$$\frac{100-15}{100} \cdot x = 0.85x$$

$60 \cdot 0.85x = 51x$	$0.85x$	60	

2550

$$51x = 2550 :$$

:

$$51x = 2550$$

$$51x = 2550 \quad / : 50$$

$$x = 50$$

50 ,

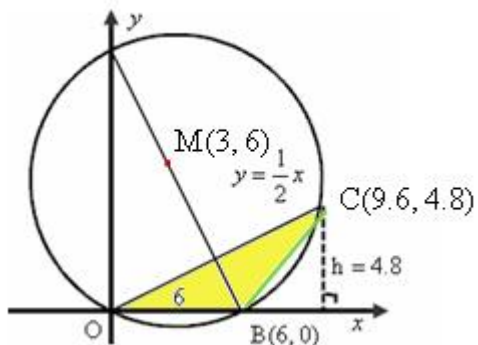
50

20

$$.20 \cdot 50 = 1000 :$$

1,000

:



$O(0, 0)$, $m_{OC} = \frac{1}{2}$, , AB

$$(x-a)^2 + (y-6)^2 = 45$$

$O(0, 0)$

$$(0-a)^2 + (0-6)^2 = 45$$

$$a^2 + 36 = 45 \rightarrow a^2 = 9 \rightarrow a = 3$$

$M(3, 6)$

$a = 3$

$a = 3$:

$$y = 0, x = 6, B(6, 0) \quad (1)$$

$$(x-3)^2 + (0-6)^2 = 45 \rightarrow (x-3)(x-3) + 36 = 45$$

$$x^2 - 3x - 3x + 9 + 36 = 45 \rightarrow x^2 - 6x = 0$$

$$x(x-6) = 0$$

$$x = 0 \text{ or } x = 6 \rightarrow \boxed{B(6, 0)}$$

$B(6, 0)$:

$$m_{AB} = m_{MB} = \frac{6-0}{0-3} = \frac{6}{-3} = -2 \quad OC \quad (2)$$

OC

$$OC \equiv y - 0 = \frac{1}{2}(x - 0) \rightarrow \boxed{OC \equiv y = \frac{1}{2}x}$$

$$y = \frac{1}{2}x \quad OC \quad :$$

$$y = \frac{1}{2}x \quad (3)$$

$$(x-3)^2 + \left(\frac{1}{2}x-6\right)^2 = 45 \rightarrow (x-3)(x-3) + \left(\frac{1}{2}x-6\right)\left(\frac{1}{2}x-6\right) = 45$$

$$x^2 - 3x - 3x + 9 + \frac{1}{4}x^2 - 3x - 3x + 36 = 45$$

$$1\frac{1}{4}x^2 - 12x = 0 \rightarrow x\left(1\frac{1}{4}x - 12\right) = 0$$

$$x = 0 \text{ or } 1\frac{1}{4}x - 12 = 0 \rightarrow 1\frac{1}{4}x = 12 \rightarrow x = 9.6$$

$$y = \frac{1}{2} \cdot 9.6 = 4.8 \rightarrow \boxed{C(9.6, 4.8)}$$

OB C OCB

$$S_{OCB} = \frac{OB \cdot h}{2} = \frac{6 \cdot 4.8}{2} = 14.4 \quad OB = 6 - 0 = 6, \quad h = 4.8 - 0 = 4.8$$

" 14.4 OCB :

"

$$y = \frac{2}{x} - x^2$$

$$x = 0, x \neq 0$$

$$x \neq 0 :$$

$$f(x) = \frac{2}{x} - x^2$$

$$f'(x) = -\frac{2}{x^2} - 2x$$

$$0 = -\frac{2}{x^2} - 2x \rightarrow 0 = -2 - 2x^3 \rightarrow 2x^3 = -2 \quad /:2$$

$$x^3 = -1 \rightarrow x = \sqrt[3]{-1} \rightarrow x = -1 \rightarrow y = \frac{2}{-1} - (-1)^2 = -3 \rightarrow \boxed{(-1, -3)}$$

($x = 0$)

$$f'(-2) = -\frac{2}{(-2)^2} - 2 \cdot (-2) > 0,$$

$$f'(-0.5) = -\frac{2}{(-0.5)^2} - 2 \cdot (-0.5) < 0,$$

$$f'(1) = -\frac{2}{1^2} - 2 \cdot 1 < 0$$

-2	-1	-0.5	0	1	x
+	0	-	x ≠ 0	-	y'
↖	Max	↘		↘	

$$x = -1$$

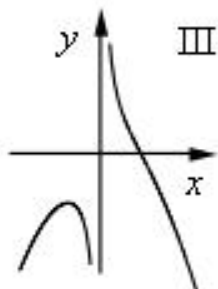
$$(-1, -3) :$$

$$(f'(1) < 0)$$

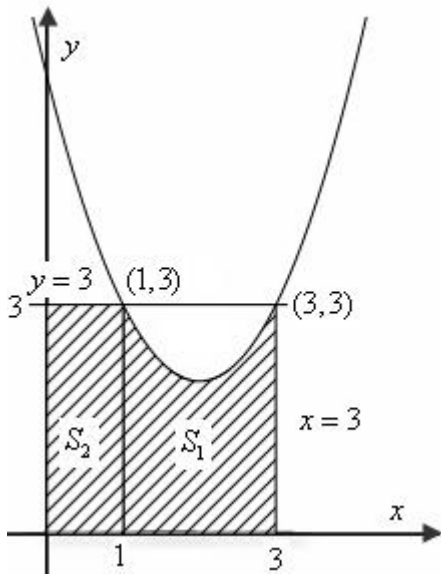
$$x > 0$$

$$(-1, -3)$$

III



$$-1 < x < 0 : , x < -1 :$$



$$y = 3, f(x) = x^2 - ax + 6$$

$$(3, 3)$$

$$3 = 3^2 - a \cdot 3 + 6 \rightarrow 3 = 15 - 3a$$

$$3a = 12 \rightarrow \boxed{a = 4}$$

$$a = 4 :$$

$$f(x) = x^2 - 4x + 6 \quad (1)$$

$$x^2 - 4x + 6 = 3 \rightarrow x^2 - 4x + 3 = 0$$

$$x_{1,2} = \frac{-(-4) \pm 2}{2}$$

$$x_1 = \frac{4+2}{2} = \frac{6}{2} = 3$$

$$x_2 = \frac{4-2}{2} = \frac{2}{2} = 1 \rightarrow \boxed{(1, 3)}$$

$$(1, 3) :$$

$$.S_2 - S_1 :$$

(2)

S_2	S_1	
$y = 3$	$f(x) = x^2 - 4x + 6$	
$y = 0$	$y = 0$	
$x = 1$	$x = 3$	x
$x = 0$	$x = 1$	x

$$S_2 = \int_0^1 (3-0) dx$$

$$S_1 = \int_1^3 (x^2 - 4x + 6 - 0) dx$$

$$S_2 = 3x \Big|_0^1$$

$$S_1 = \frac{x^3}{3} - \frac{4x^2}{2} + 6x \Big|_1^3$$

$$S_2 = (3 \cdot 1) - (3 \cdot 0)$$

$$S_1 = \left(\frac{3^3}{3} - \frac{4 \cdot 3^2}{2} + 6 \cdot 3 \right) - \left(\frac{1^3}{3} - \frac{4 \cdot 1^2}{2} + 6 \cdot 1 \right)$$

$$S_2 = 3 - 0$$

$$S_2 = 3$$

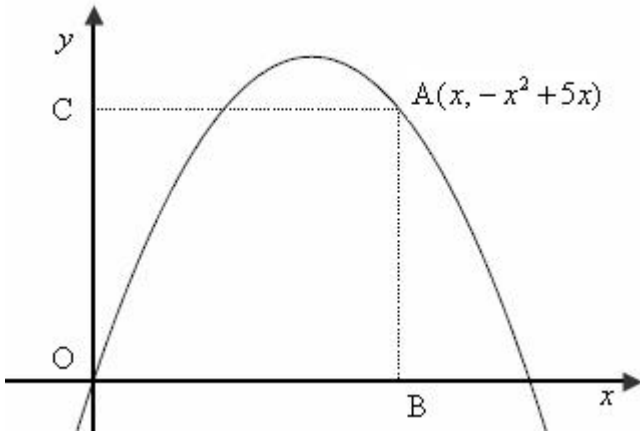
$$S_1 = (9) - \left(4 \frac{1}{3} \right)$$

$$S_2 = 3 \cdot 1 = 3$$

$$S_1 = 4 \frac{2}{3}$$

$$S_1 + S_2 = 4\frac{2}{3} + 3 = \boxed{7\frac{2}{3}} :$$

$$. " 7\frac{2}{3} :$$



• $x = A$ $x =$.
A

• $A(x, -x^2 + 5x)$ $y = -x^2 + 5x$

$C(0, -x^2 + 5x) - B(x, 0) :$

ΠΛΗΘΙΣΤΗΝ

: ABOC

$P(x) = 2OB + 2OC$

$P(x) = 2x + 2(-x^2 + 5x)$

$P(x) = 2x - 2x^2 + 10x$

$P(x) = 12x - 2x^2$

:

$P'(x) = 12 - 4x$

$0 = 12 - 4x$

$4x = 12 \quad /:4$

$x = 3$

$(P)'(2) = 12 - 4 \cdot 2 > 0, \quad (P)'(4) = 12 - 4 \cdot 4 < 0$

2	3	4	x
-	0	+	P'(x)
↗	Max	↘	

.

$x_A = 3 \rightarrow y_A = -3^2 + 5 \cdot 3 = 6$

ABOC

A(3, 6) :

()

$P(3) = 2OB + 2OC = 2 \cdot 3 + 2 \cdot 6 = 18$

$P(3) = 12 \cdot 3 - 2 \cdot 3^2 = 18$

∴ 18

:

$$y = -12\sqrt{x} + 6x$$

$$, x \geq 0$$

$$x \geq 0 :$$

(1)

$$y = -12\sqrt{x} + 6x$$

$$y' = -\frac{12}{2\sqrt{x}} + 6$$

$$0 = -\frac{12}{2\sqrt{x}} + 6 \quad / \cdot 2\sqrt{x}$$

$$0 = -12 + 12\sqrt{x}$$

$$-12\sqrt{x} = -12 \quad / : (-12)$$

$$\sqrt{x} = 1$$

$$x = 1 \rightarrow y = -12\sqrt{1} + 6 \cdot 1 = -6 \rightarrow (1, -6)$$

:

(2)

$$y'(0.5) = -\frac{12}{2\sqrt{0.5}} + 6 = -2.48 < 0, \quad y'(2) = -\frac{12}{2\sqrt{2}} + 6 = +1.76 > 0$$

0	0.5	1	2	x
	-	0	+	y'
	↘	Min	↗	

$$x = -1$$

$$(1, -6) :$$

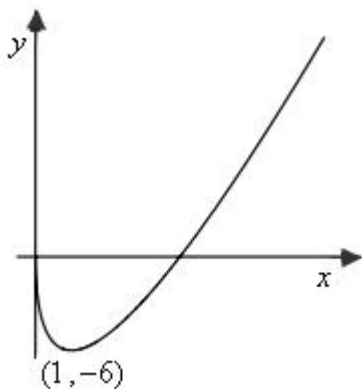
$$(1, -6)$$

$$(-6)$$

$$-7$$

$$y -$$

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