

$\cdot 4x$ 4 ,() - x .
 , 85% - $4x$ - , 15%
 $\cdot \frac{85}{100} \cdot 4x = 0.85 \cdot 4x = 3.4x$
 , 90% - x - , 10%
 $\cdot \frac{90}{100} \cdot x = 0.9 \cdot x$

"	()	()		
$18 \cdot 3.4x = 61.2x$	$3.4x$	18		
$36 \cdot 0.9x = 32.4x$	$0.9x$	36		

$\cdot 61.2x + 32.4x = 468 : , \quad 468$

$61.2x + 32.4x = 468$
 $93.6x = 468 \quad / : 93.6$

$x = 5$

$\cdot 20 , , \quad 5$
 $\cdot , \quad 5 , \quad 20 :$

$\cdot 18 \cdot 20 + 36 \cdot 5 = \quad 540 , \quad \cdot$

$\cdot 540 - 468 = \quad 72 ,$

$\cdot 72 : \quad :$

$\cdot , \quad 72 \quad \cdot$

$\cdot 0.9 \cdot 5 = \quad 4.5$

$\cdot 72 : 4.5 = \quad 16 : \quad 72 -$

$\cdot 16 : \quad :$

35803

17

• $(2, -5)$ A , AB D(-1, -1) .

$$\left. \begin{aligned} -1 &= \frac{x_B + 2}{2} \rightarrow -2 = x_B + 2 \rightarrow -4 = x_B \\ -1 &= \frac{y_B - 5}{2} \rightarrow -2 = y_B - 5 \rightarrow 3 = y_B \end{aligned} \right\} \boxed{B(-4, 3)}$$

• B(-4, 3) :

• -3 , $y = -3x + 1$ AC (1) .

• $m_{BE} = \frac{1}{3}$, $m_{BE} \cdot (-3) = -1$, BE

• $m_{BE} = \frac{1}{3}$ B(-4, 3) , BE

$$y - 3 = \frac{1}{3}(x - (-4))$$

$$y - 3 = \frac{1}{3}(x + 4)$$

$$y - 3 = \frac{1}{3}x + 1\frac{1}{3} \quad / +3$$

$$\boxed{y = \frac{1}{3}x + 4\frac{1}{3}}$$

• $y = \frac{1}{3}x + 4\frac{1}{3}$ BE :

• AC BE , E (2)

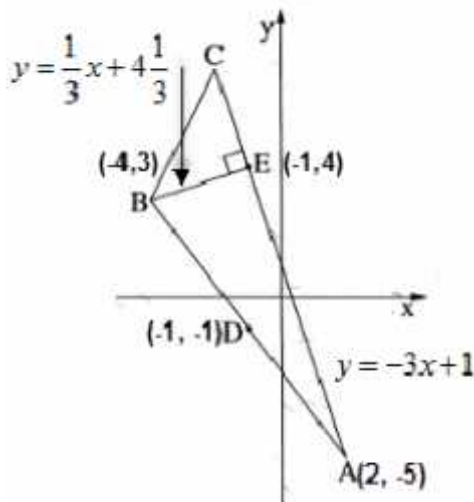
$$E \begin{cases} y = \frac{1}{3}x + 4\frac{1}{3} \\ y = -3x + 1 \end{cases}$$

$$\frac{1}{3}x + 4\frac{1}{3} = -3x + 1 \quad / +3x - 4\frac{1}{3}$$

$$3\frac{1}{3}x = -3\frac{1}{3} \quad / : (3\frac{1}{3})$$

$$x = -1 \rightarrow y = -3 \cdot (-1) + 1 = 4 \rightarrow \boxed{E(-1, 4)}$$

• E(-1, 4) :

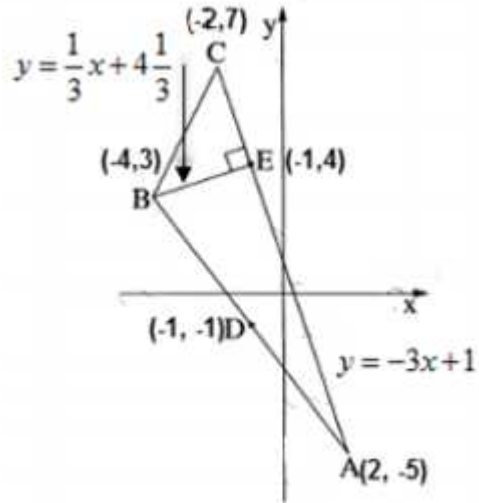


$$y = -3x + 1: AC$$

$$x_C = -2$$

$$C(-2, 7)$$

$$y_C = -3 \cdot (-2) + 1 = 7$$



$$S_{\triangle BCE} = \frac{CE \cdot BE}{2}$$

$$CE = \sqrt{(-2 - (-1))^2 + (7 - 4)^2} = \sqrt{10}$$

$$BE = \sqrt{(-4 - (-1))^2 + (3 - 4)^2} = \sqrt{10}$$

$$S_{\triangle BCE} = \frac{\sqrt{10} \cdot \sqrt{10}}{2} = 5$$

" 5 BCE :

(1)

$$AO = R = \sqrt{(9-6)^2 + (11-7)^2} = \sqrt{25}$$

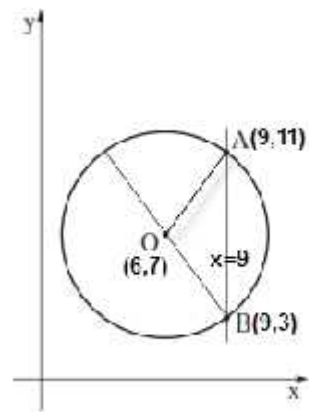
$$\boxed{R=5}$$

.5 :

$$\cdot (x-6)^2 + (y-7)^2 = 25 \quad :$$

.B , $x=9$.

$x=9$



$$(9-6)^2 + (y-7)^2 = 25$$

$$9 + (y-7)(y-7) = 25$$

$$9 + y^2 - 7y - 7y + 49 = 25$$

$$y^2 - 14y + 33 = 0$$

$$y_{1,2} = \frac{-(-14) \pm \sqrt{(-14)^2 - 4 \cdot 1 \cdot 33}}{2 \cdot 1}$$

$$y_{1,2} = \frac{14 \pm \sqrt{64}}{2} = \frac{14 \pm 8}{2}$$

$$y_1 = \frac{14+8}{2} = \frac{22}{2} = 11 = y_A$$

$$y_2 = \frac{14-8}{2} = \frac{6}{2} = 3 = y_B \rightarrow \boxed{B(9,3)}$$

. B(9,3) :

$$m_{BO} = \frac{7-3}{6-9} = \frac{4}{-3} = -1\frac{1}{3}$$

$$\cdot O(6,7) , m_{BO} = -1\frac{1}{3}$$

$$y-7 = -1\frac{1}{3}(x-6)$$

$$y-7 = -1\frac{1}{3}x+8$$

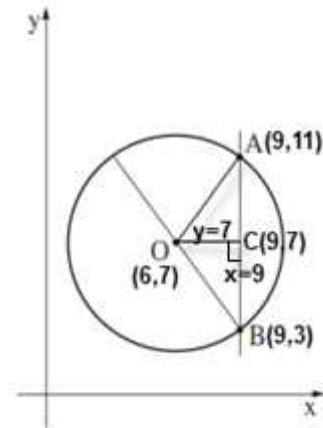
$$\boxed{y = -1\frac{1}{3}x+15}$$

$$\cdot y = -1\frac{1}{3}x+15 \quad :$$

"

$\cdot x =$ \quad AB \quad $\cdot AOB$
 $\cdot C(9,7)$ \quad AB \quad $\cdot , y =$ \quad $x = 9$
 $\cdot , y = 7$
 $d_{AB} = y_A - y_B = 11 - 3 = 8$
 $d_{OC} = x_C - x_O = 9 - 6 = 3$
 $S_{\Delta AOB} = \frac{AB \cdot OC}{2} = \frac{8 \cdot 3}{2} = 12$

$\cdot "$ 12 AOB $:$



$$y = \frac{36}{x} + 9x + 1$$

$$x = 0 \quad x \neq 0$$

$$x \neq 0$$

$$y' = -\frac{36}{x^2} + 9$$

$$0 = -\frac{36}{x^2} + 9 \quad / \cdot x^2$$

$$0 = -36 + 9x^2$$

$$36 = 9x^2 \quad / : 9$$

$$x^2 = 4$$

$$x = 2 \rightarrow y = \frac{36}{2} + 9 \cdot 2 + 1 = 37 \rightarrow (2, 37)$$

$$x = -2 \rightarrow y = \frac{36}{-2} + 9 \cdot (-2) + 1 = -35 \rightarrow (-2, -35)$$

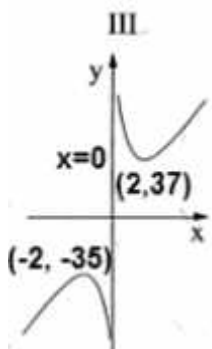
$$\left. \begin{array}{l} y'(1) = -\frac{36}{1^2} + 9 < 0 \\ y'(3) = -\frac{36}{3^2} + 9 > 0 \end{array} \right\} (2, 37) \text{Min}$$

$$\left. \begin{array}{l} y'(-3) = -\frac{36}{(-3)^2} + 9 > 0 \\ y'(-1) = -\frac{36}{(-1)^2} + 9 < 0 \end{array} \right\} (-2, -35) \text{Max}$$

$(-2, -35), (2, 37)$

-3	-2	-1	0	1	2	3	x
+	0	-		-	0	+	y'
↗	Max	↘		↘	Min	↗	

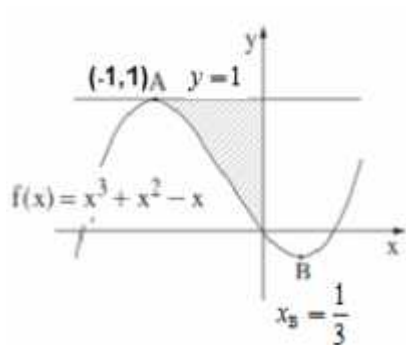
$-2 < x < 0 \quad 0 < x < 2 : \quad , \quad x < -2 \quad x > 2 :$



$(-2, -35), (2, 37)$

$x = 0$

III :



$$\cdot B - A \quad f(x) = x^3 + x^2 - x$$

$$\cdot f'(x) = 0$$

$$f'(x) = 3x^2 + 2x - 1$$

$$3x^2 + 2x - 1 = 0$$

$$x_{1,2} = \frac{-2 \pm \sqrt{2^2 - 4 \cdot 3 \cdot (-1)}}{2 \cdot 3}$$

$$x_{1,2} = \frac{-2 \pm 4}{6}$$

$$x_1 = \frac{-2+4}{6} = \frac{2}{6} = \frac{1}{3} \rightarrow \boxed{x_B = \frac{1}{3}}$$

$$x_2 = \frac{-2-4}{6} = \frac{-6}{6} = -1 \rightarrow \boxed{x_A = -1}$$

$$\cdot x_B = \frac{1}{3}, x_A = -1 :$$

$$\cdot A \quad y - \quad (1) \cdot$$

$$y_A = (-1)^3 + (-1)^2 - (-1) = 1$$

$$\cdot y_A = 1 :$$

$$\cdot y = 1 \quad , \quad , \quad (2)$$

$$\cdot y = 1 \quad :$$

$$S = \int_{-1}^0 (1 - (x^3 + x^2 - x)) dx$$

$$S = \int_{-1}^0 (1 - x^3 - x^2 + x) dx$$

$$S = x - \frac{x^4}{4} - \frac{x^3}{3} + \frac{x^2}{2} \Big|_{-1}^0$$

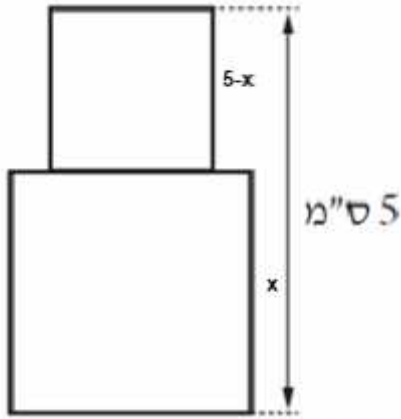
$$S = \left(0 - \frac{0^4}{4} - \frac{0^3}{3} + \frac{0^2}{2}\right) - \left(-1 - \frac{(-1)^4}{4} - \frac{(-1)^3}{3} + \frac{(-1)^2}{2}\right)$$

$$S = 0 - \left(-\frac{5}{12}\right)$$

$$\boxed{S = \frac{5}{12}}$$

$$\cdot \quad " \quad \frac{5}{12} \quad :$$

"



$x -$
 5
 $(5-x)$
 $(5-x)$

min

x^2
 $(5-x)^2$

$x^2 + (5-x)^2 = x^2 + (5-x)(5-x) =$
 $= x^2 + 25 - 5x - 5x + x^2 = 2x^2 - 10x + 25$

$y = 2x^2 - 10x + 25 :$

$y' = 4x - 10$
 $0 = 4x - 10$
 $-4x = -10 \quad /: (-4)$
 $x = 2.5$

$y'(2) = 4 \cdot 2 - 10 < 0, \quad y'(3) = 4 \cdot 3 - 10 > 0$

0	2	2.5	3	5	x
	-	0	+		y'
	↘	Min	↗		

$x = 2.5 :$

$2.5^2 + 2.5^2 = 12.5$
 $y = 2 \cdot 2.5^2 - 10 \cdot 2.5 + 25 = 12.5$

12.5

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