

35803

17

, ( ) x :

. 300 - , ( ) x + 300

. " ,

.12% - , ( )  $\frac{12}{100} \cdot (x + 300) = 0.12(x + 300)$

.18% - , ( )  $\frac{18}{100} \cdot x = 0.18x$

$$0.12(x + 300) = 0.18x$$

$$0.12x + 36 = 0.18x \quad / -0.12x$$

$$36 = 0.06x \quad / :0.06$$

$$\boxed{x = 600}$$

. 600 :

$$.600 + 300 = 900 ,$$

$$.600 - 108 = 492 , \quad .18 \cdot 600 = 108 -$$

$$.900 + 108 = 1008 , \quad , \quad 108 -$$

$$.1008 - 492 = 516$$

$$. 516 - , 2 \cdot 108 = 216 - , 300 :$$

. 516 - , :

•  $y_B = 0$      $x =$     B    (1)

•  $y = -\frac{3}{4}x + 3$  : AB     $y = 0$

$$0 = -\frac{3}{4}x + 3$$

$$\frac{3}{4}x = 3 \quad /: (\frac{3}{4})$$

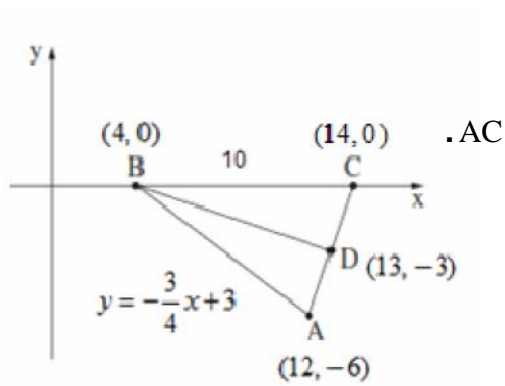
$$x = 4 \rightarrow \boxed{B(4, 0)}$$

• B(4, 0) :

•10    B(4, 0) -    ,  $x =$     BC    (2)

•  $x_C = x_B + 10 = 4 + 10 = 14 \rightarrow \boxed{C(14, 0)}$

• C(14, 0) :



D    ,  $\Delta ABC$  - AC    BD .

$$\left. \begin{aligned} x_D &= \frac{14+12}{2} = \frac{26}{2} = 13 \\ y_D &= \frac{0+(-6)}{2} = \frac{-6}{2} = -3 \end{aligned} \right\} D(13, -3)$$

•  $m_{BD} = \frac{-3-0}{13-4} = \frac{-3}{9} = -\frac{1}{3}$  : BD

$$y - 0 = -\frac{1}{3}(x - 4)$$

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

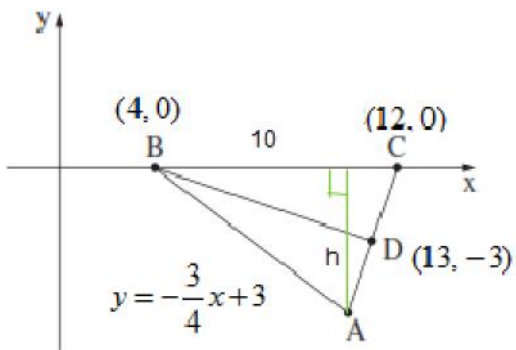
•  $y = -\frac{1}{3}x + 1\frac{1}{3}$     BD    :

•  $m_{AC} = \frac{0 - (-6)}{14 - 12} = \frac{6}{2} = 3$  : AC

$$m_{AC} \cdot m_{BD} = 3 \cdot (-\frac{1}{3}) = -1 \rightarrow BD \perp AC$$

• AC -    BD    (-1)    :

"



.  $\Delta ABC$  .

.  $BC = 10$  .

$$h = 0 - (-6) = 6$$

$$S_{\Delta ABC} = \frac{BC \cdot h}{2} = \frac{10 \cdot 6}{2} = 30$$

. " 30  $\Delta ABC$  :

( $\Delta ABC$ ) (BD) .

.  $\Delta BCD$  2  $\Delta ABC$

. 2 :

.MD = 5 - 0 = 5 : D(4, 0) - , x - MD - .M(4, 5) (1) .

.MD = 5 :

.5 MD - (2)

.(x-4)<sup>2</sup> + (y-5)<sup>2</sup> = 25 :

. B - A y - (x-4)<sup>2</sup> + (y-5)<sup>2</sup> = 25 .

x = 0

(0-4)<sup>2</sup> + (y-5)<sup>2</sup> = 25

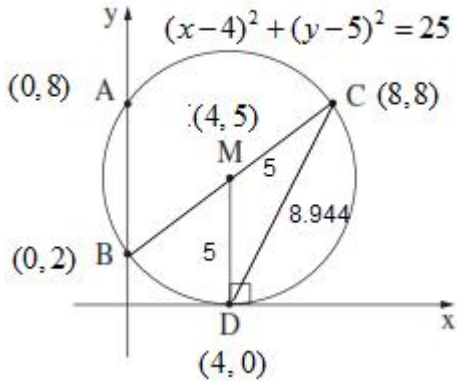
16 + (y-5)<sup>2</sup> = 25

(y-5)<sup>2</sup> = 9

y-5 = 3 → y = 8 → A(0,8)

y-5 = -3 → y = 2 → B(0,2)

.B(0,2) , A(0,8) :



.BC M(4,5) , BC .

,3 - y - ,4 - x - ,M(4,5) - B(0,2) -

.C(8,8) - ,C M(4,5) -

:

$5 = \frac{y_C + 2}{2} \quad / \cdot 2$

$10 = y_C + 2$

$y_C = 8$

$4 = \frac{x_C + 0}{2} \quad / \cdot 2$

$8 = x_C$

.C(8,8) :

.ΔCMD .

CM = DM = R = 5

.  $d_{CD} = \sqrt{(8-4)^2 + (8-0)^2} = \sqrt{80} = 8.944$

. 5 + 5 + 8.944 = 18.944 :

. 18.944 ΔCMD :

"

$$y = x - 4 + \frac{16}{x}$$

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

$$x \neq 0 :$$

$$y = x - 4 + \frac{16}{x}$$

$$y' = 1 - \frac{16}{x^2}$$

$$0 = 1 - \frac{16}{x^2} \rightarrow 0 = x^2 - 16$$

$$x^2 = 16 \rightarrow x = \pm 4$$

$$y(4) = 4 - 4 + \frac{16}{4} = 4 \rightarrow (4, 4), \quad y(-4) = -4 - 4 + \frac{16}{-4} = -12 \rightarrow (-4, -12)$$

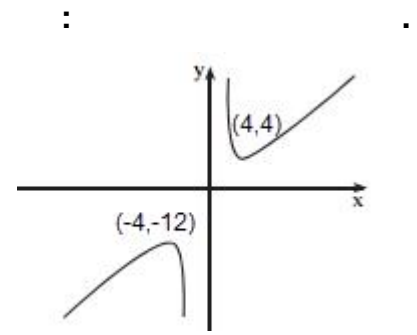
$$y'(-5) = 1 - \frac{16}{(-5)^2} = 0.36 > 0, \quad y'(-3) = 1 - \frac{16}{(-3)^2} = -0.78 < 0$$

$$y'(3) = 1 - \frac{16}{3^2} = -0.78 < 0, \quad y'(5) = 1 - \frac{16}{5^2} = 0.36 > 0$$

-5	-4	-3	0	3	4	5	$x$
+	0	-		-	0	+	$y'$
↗	<b>Max</b>	↘		↘	<b>Min</b>	↗	

$$(4, 4), \quad (-4, -12) :$$

$$-4 < x < 0 \quad 0 < x < 4 : \quad , \quad x < -4 \quad x > 4 : \quad :$$



. x -

,

. y = 0

x -

$$0 = x - 4 + \frac{16}{x} \quad / \cdot x$$

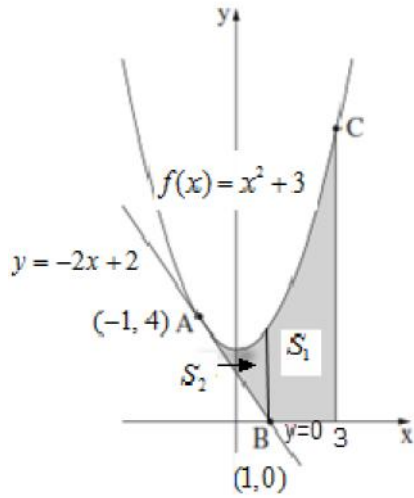
$$0 = x^2 - 4x + 16$$

$$x_{1,2} = \frac{4 \pm \sqrt{-48}}{2}$$

. x -

. x -

:



$f(x) = x^2 + 3$

$x = -1$  , A (1)

$f'(x) = 2x$

$m(-1) = f'(-1) = 2 \cdot (-1) = -2$

$-2$  :

A (2)

A(-1, 4)

$f(-1) = (-1)^2 + 3 = 4$

$y - 4 = -2(x - (-1))$

$y - 4 = -2(x + 1)$

$y - 4 = -2x - 2$

$y = -2x + 2$

$y = -2x + 2$  :

$y = 0$  x -

$0 = -2x + 2$

$2x = 2$

$x = 1 \rightarrow B(1, 0)$

B(1, 0) :

$(x_c > 0)$

$f(x) = x^2 + 3$

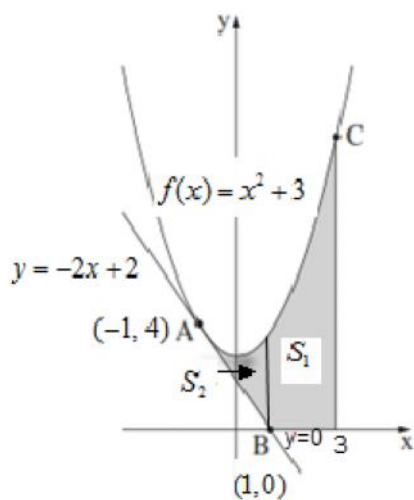
C ,  $y_c = 12$  .

$12 = x^2 + 3$

$9 = x^2$

$x = 3 \rightarrow x_c = 3 \leftarrow x_c > 0$

$x_c = 3$  :



$$S_1 = \underline{\hspace{2cm}}$$

$$:$$

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

$$S_1 = \int_1^3 (x^2 + 3) dx$$

$$S_1 = \left[ \frac{x^3}{3} + 3x \right]_1^3$$

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

$$S_1 = 18 - \left( 3\frac{1}{3} \right)$$

$$\boxed{S_1 = 14\frac{2}{3}}$$

$$S_2 = \underline{\hspace{2cm}}$$

$$:$$

$$x^2 + 3 - (-2x + 2) =$$

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

$$S_2 = \int_{-1}^1 (x^2 + 2x + 1) dx$$

$$S_2 = \left[ \frac{x^3}{3} + \frac{2x^2}{2} + x \right]_{-1}^1$$

$$S_2 = \left( \frac{1^3}{3} + 1^2 + 1 \right) - \left( \frac{(-1)^3}{3} + (-1)^2 + (-1) \right)$$

$$S_2 = 2\frac{1}{3} - \left( -\frac{1}{3} \right)$$

$$\boxed{S_2 = 2\frac{2}{3}}$$

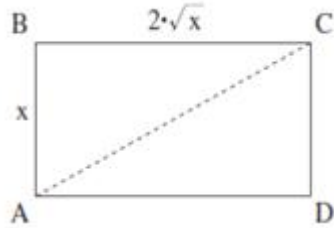
$$14\frac{2}{3} + 2\frac{2}{3} = 17\frac{1}{3}$$

$$. \quad " \quad 17\frac{1}{3} \quad :$$



.AB - BC

**מיון**



$$y = 2\sqrt{x} - x$$

$$y' = \frac{2}{2\sqrt{x}} - 1$$

$$y' = \frac{1}{\sqrt{x}} - 1$$

$$0 = \frac{1}{\sqrt{x}} - 1 \quad / \cdot \sqrt{x}$$

$$0 = 1 - \sqrt{x}$$

$$\sqrt{x} - 1$$

$$\boxed{x=1}$$

.( $x > 0$ )

$$y'(0.5) = \frac{1}{\sqrt{0.5}} - 1 > 0, \quad y'(2) = \frac{1}{\sqrt{2}} - 1 < 0$$

0	0.5	1	2	$x$
	+	0	-	$y'$
	↗	<b>Max</b>	↘	

AB - BC

,  $x=1$  :

$$.BC = 2\sqrt{1} = 2 - , x=1$$

. $\Delta ABC$  -

$$(AC)^2 = (AB)^2 + (BC)^2$$

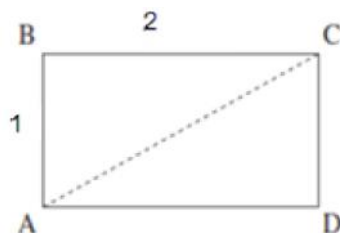
$$(AC)^2 = 1^2 + 2^2$$

$$(AC)^2 = 5$$

$$\boxed{AC = \sqrt{5}}$$

$$.\sqrt{5}$$

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