



. AC - AB

, A

$$A \begin{cases} y = -x + 12 \\ y = 3x - 16 \end{cases}$$

$$-x + 12 = 3x - 16 \quad / -3x - 12$$

$$-4x = -28 \quad / : (-4)$$

$$x = 7 \rightarrow y = -7 + 12 = 5 \rightarrow \boxed{A(7, 5)}$$

. A(7, 5) :

. ( ) -1 ,  $y = -x + 12$  AC (1) .

. ( ) +3 ,  $y = 3x - 16$  AB )

.  $y = -x + 12$  AC :

.  $y = 0$  ,  $x =$  , C (2)

. AC  $y = 0$

$$0 = -x + 12$$

$$x = 12 \rightarrow \boxed{C(12, 0)}$$

. C(12, 0) :

. -1 ,  $y = -x + 12$  AC

.  $m_{BD} \cdot m_{AC} = -1 \rightarrow \boxed{m_{BD} = 1}$  : , BD

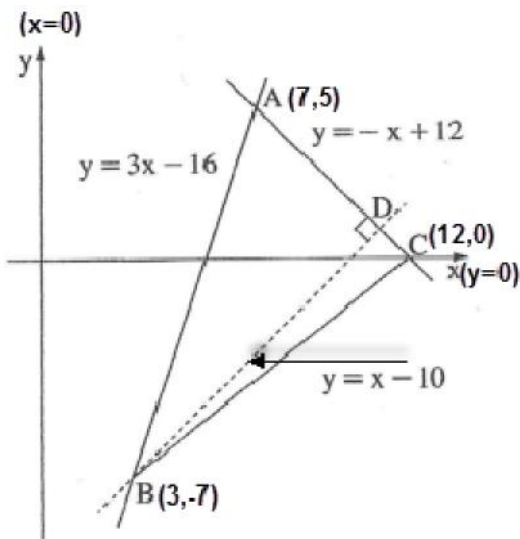
. B(3, -7) ,  $m_{BD} = 1$  : , BD

$$y - (-7) = 1(x - 3)$$

$$y + 7 = x - 3$$

$$\boxed{y = x - 10} \text{ o.k.}$$

. :



!!!

. BC

BDC

$$\left. \begin{aligned} x &= \frac{3+12}{2} = \frac{15}{2} = 7.5 \\ y &= \frac{-7+0}{2} = \frac{-7}{2} = -3.5 \end{aligned} \right\} \boxed{(7.5, -3.5)}$$

. (7.5, -3.5) BDC

"

$$.5 \quad M(10, 0) \quad .$$

$$.(x-10)^2 + (y-0)^2 = 5^2 :$$

$$.(x-10)^2 + y^2 = 25 \quad :$$

$$.B - A \quad y = 4 \quad .$$

$$y = 4$$

$$(x-10)^2 + 4^2 = 25$$

$$(x-10)(x-10) + 16 = 25$$

$$x^2 - 10x - 10x + 100 + 16 = 25$$

$$x^2 - 20x + 116 = 25 \quad / -26$$

$$x^2 - 20x + 91 = 0$$

$$x_{1,2} = \frac{-(-20) \pm \sqrt{(-20)^2 - 4 \cdot 1 \cdot 91}}{2 \cdot 1}$$

$$x_{1,2} = \frac{20 \pm 6}{2}$$

$$x_1 = \frac{20+6}{2} = \frac{26}{2} = 13 \rightarrow \boxed{B(13, 4)}$$

$$x_2 = \frac{20-6}{2} = \frac{14}{2} = 7 \rightarrow \boxed{A(7, 4)}$$

$$.B(13, 4) , A(7, 4) :$$

$$. x = 13$$

, y -

$$B(13, 4)$$

**(1)** .

$$x = 13$$

$$(13-10)^2 + y^2 = 25$$

$$9 + y^2 = 25$$

$$y^2 = 16$$

$$y = -4 \leftarrow y_C < 4$$

$$\boxed{C(13, -4)}$$

$$.C(13, -4) :$$

$$\angle ABC = 90^\circ$$

AC (2)

.AC ,

( $\Delta ABC$ )

.AC

$$M(10, 0)$$

$$\left. \begin{aligned} x &= \frac{7+13}{2} = \frac{20}{2} = 10 \\ y &= \frac{4+(-4)}{2} = \frac{0}{2} = 0 \end{aligned} \right\} (10, 0) \text{ o.k.}$$

. :

(3)

$$BA = x_B - x_A = 13 - 7 = 6$$

$$BC = y_B - y_C = 4 - (-4) = 8$$

$$AC = 2R = 2 \cdot 5 = 10$$

$$. 6 + 8 + 10 = 24 \quad \Delta ABC -$$

$$. \quad 24 \quad \Delta ABC \quad :$$

$$f(x) = \frac{16}{x} - x^2$$

$$x \neq 0 :$$

$$x \neq 0 :$$

$$f'(x) = -\frac{16}{x^2} - 2x$$

$$0 = -\frac{16}{x^2} - 2x \quad / \cdot x^2$$

$$0 = -16 - 2x^3 \quad / +2x^3$$

$$2x^3 = -16 \quad / :2$$

$$x^3 = -8$$

$$x = -2 \rightarrow f(-2) = \frac{16}{-2} - (-2)^2 \rightarrow (-2, -12)$$

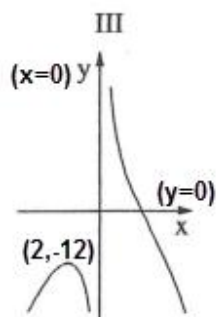
$$\left. \begin{aligned} f'(-3) &= -\frac{16}{(-3)^2} - 2 \cdot (-3) > 0 \\ f'(-1) &= -\frac{16}{(-1)^2} - 2 \cdot (-1) < 0 \end{aligned} \right\} \text{max}$$

$$f'(1) = -\frac{16}{1^2} - 2 \cdot 1 < 0$$

-3	-2	-1	0	1	x
+	0	-		-	y'
↖	Max	↘		↘	

$$(-2, -12) :$$

$$x > 0$$



$$(-2, -12)$$

, III

$$x \neq 0$$

$$x = 0, y$$

,  $x = b - x = a$

,  $x -$

.  $y = 0$

,  $x -$

,  $f(x) = -2.5x^2 + 20x - 30$

$$-2.5x^2 + 20x - 30 = 0$$

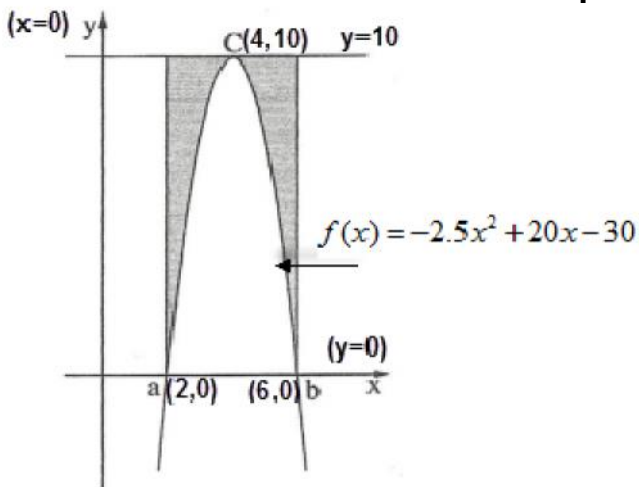
$$x_{1,2} = \frac{-20 \pm \sqrt{20^2 - 4 \cdot (-2.5) \cdot (-30)}}{2 \cdot (-2.5)}$$

$$x_{1,2} = \frac{-20 \pm 10}{-5}$$

$$x_1 = \frac{-20 + 10}{-5} = \frac{-10}{-5} = 2 \rightarrow \boxed{a = 2}$$

$$x_2 = \frac{-20 - 10}{-5} = \frac{-30}{-5} = 6 \rightarrow \boxed{b = 6}$$

.  $b = 6, a = 2 :$



.  $y = 10$

,  $f(x)$

$$f'(x) = -5x + 20$$

$$0 = -5x + 20$$

$$5x = 20 \quad / : 5$$

$$x = 4 \rightarrow y = -2.5 \cdot 4^2 + 20 \cdot 4 - 30 = 10$$

$C(4,10)$ , max

.  $y = 10$

:

$$10 - (-2.5x^2 + 20x - 30) = 10 + 2.5x^2 - 20x + 30 = 2.5x^2 - 20x + 40 \quad :$$

$$S = \int_2^6 (2.5x^2 - 20x + 40) dx$$

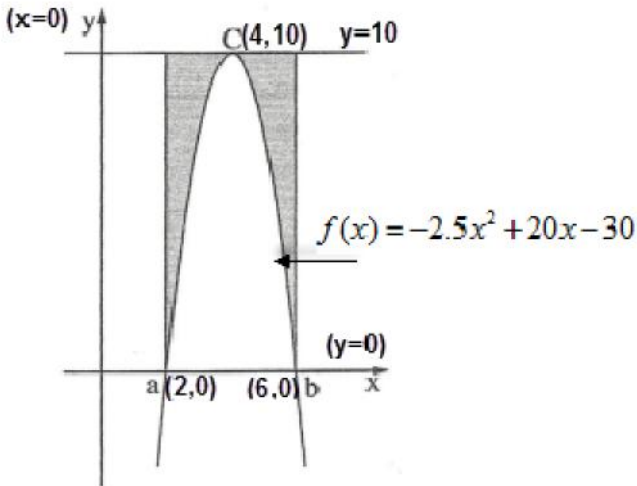
$$S = \left[ \frac{2.5x^3}{3} - \frac{20x^2}{2} + 40x \right]_2^6$$

$$S = \left( \frac{2.5 \cdot 6^3}{3} - \frac{20 \cdot 6^2}{2} + 40 \cdot 6 \right) - \left( \frac{2.5 \cdot 2^3}{3} - \frac{20 \cdot 2^2}{2} + 40 \cdot 2 \right)$$

$$S = 60 - \left( 46 \frac{2}{3} \right)$$

$$\boxed{S = 13 \frac{1}{3}}$$

$$13 \frac{1}{3} \quad :$$

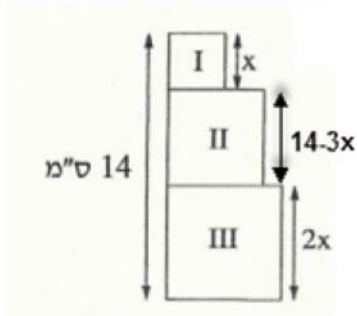


. III - II , I , (1) .

.  $2x - x$  III - I , " 14

$$14 - x - 2x = 14 - 3x \quad \text{II}$$

. "  $(14 - 3x)$  II :



.  $x$  (2)

$$x^2 + (14 - 3x)^2 + (2x)^2 =$$

$$x^2 + (14 - 3x)(14 - 3x) + 4x^2 =$$

$$x^2 + 196 - 42x - 42x + 9x^2 + 4x^2 =$$

$$14x^2 - 84x + 196$$

$$. 14x^2 - 84x + 196$$

**מינימום** **סכום שטחי שלושת הריבועים.**

$$S(x) = 14x^2 - 84x + 196$$

$$S'(x) = 28x - 84$$

$$0 = 28x - 84 \quad / -28x$$

$$-28x = -84 \quad / :(-28)$$

$$x = 3$$

$$\left. \begin{array}{l} S'(2) = 28 \cdot 2 - 84 < 0 \\ S'(4) = 28 \cdot 4 - 84 > 0 \end{array} \right\} \rightarrow \text{Min}$$

,  $x = 3$ :