

;', $x-10$,', - x - .
 .', 10 -

. $34x$, 34 , ,
 . $68(x-10)$, 68 , ,

.' 75% ,
 . $68(x-10) = 0.75 \cdot 34x$: , $68(x-10) = 75\% \cdot 34x$:

$$\begin{aligned} &: \\ &68(x-10) = 0.75 \cdot 34x \\ &68x - 680 = 25.5x \quad / +680 - 25.5x \\ &42.5x = 680 \quad / : 42.5 \end{aligned}$$

$$\boxed{x=16} \rightarrow \boxed{x-10=16-10=6}$$

.6 , 16 , :

,(') 16 , .

$$.68 \cdot 16 = 1088$$

. 1088 :

• -1 , $y = -x + 11$ BC (1) .

• $m_{AD} \cdot m_{BC} = -1 \rightarrow m_{AD} = 1$: AD

• $m_{AD} = 1$:

• $A(4, 1)$, $m_{AD} = -1$: , AD (2)

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

$y - 1 = x - 4$

$y = x - 3$

• $y = x - 3$ AD :

• $x = 0$, E .

• AD $y = 0$

$0 = x - 3$

$x = 3 \rightarrow E(3, 0)$

• D

$$D \begin{cases} y = x - 3 \\ y = -x + 11 \end{cases}$$

$x - 3 = -x + 11 \quad / +x + 3$

$2x = 14 \quad / : 2$

$x = 7 \rightarrow y = 7 - 3 = 4 \rightarrow D(7, 4)$

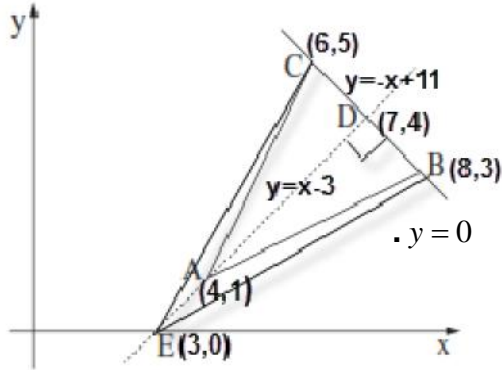
• BC D , AD , ABC

$$\left. \begin{aligned} x_D &= \frac{x_C + x_B}{2} \rightarrow 7 = \frac{x_C + 8}{2} \rightarrow 14 = x_C + 8 \rightarrow x_C = 6 \\ y_D &= \frac{y_C + y_B}{2} \rightarrow 4 = \frac{y_C + 3}{2} \rightarrow 8 = y_C + 3 \rightarrow y_C = 5 \end{aligned} \right\} C(6, 5)$$

• $C(6, 5)$, $D(7, 4)$, $E(3, 0)$:

• BC ED , $\triangle CEB$.

$$\left. \begin{aligned} d_{EC} &= \sqrt{(3-6)^2 + (0-5)^2} = \sqrt{34} \\ d_{EB} &= \sqrt{(3-8)^2 + (0-3)^2} = \sqrt{34} \end{aligned} \right\} EB = EC :$$



$(\sqrt{125} \quad M(6, 3) \quad) (x-6)^2 + (y-3)^2 = 125$

$-2 \quad A(16, 8) \quad (1)$

$m_{mashik} \cdot m_{AM} = -1 :$

, MA

$+\frac{1}{2} \quad (\quad)$

:MA

$y-3 = \frac{1}{2}(x-6)$

$y-3 = \frac{1}{2}x-3$

$y = \frac{1}{2}x$

$y_A = \frac{1}{2} \cdot 16 = 8 \rightarrow \boxed{y_A = 8} \rightarrow A(16, 8) :$

$x_A = 16$

. A y -

, $y_A = 8 :$

$A(16, 8), m_{mashik} = -2 :$

(2)

$y-8 = -2(x-16)$

$y-8 = -2x+32$

$\boxed{y = -2x+40}$

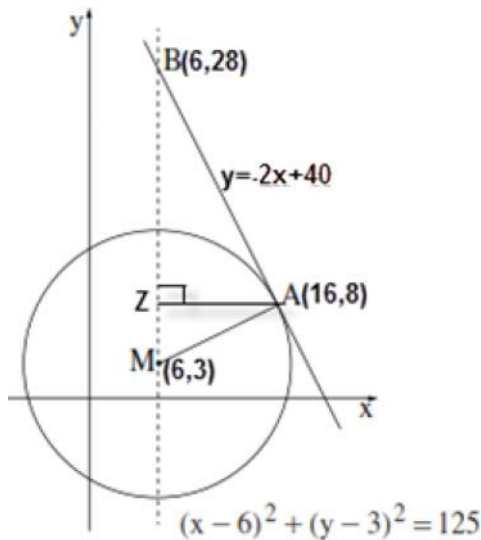
$y = -2x+40$

:

: $x = 6$

$y = -2 \cdot 6 + 40 = 28 \rightarrow \boxed{B(6, 28)}$

. B(6, 28):



.BM AZ

$AZ = x_A - x_Z = 16 - 6 = 10$

$BM = y_B - y_M = 28 - 3 = 25$

$S_{\triangle CDM} = \frac{BM \cdot AZ}{2} = \frac{25 \cdot 10}{2} = 125 \rightarrow \boxed{S_{\triangle AMB} = 125}$

. " 125

:

"

$$f(x) = 2x - 8\sqrt{x}$$

$$x \geq 0$$

$$x \geq 0$$

$$f'(x) = 2 - \frac{8}{2\sqrt{x}}$$

$$0 = 2 - \frac{8}{2\sqrt{x}} \quad | \cdot 2\sqrt{x}$$

$$0 = 4\sqrt{x} - 8$$

$$8 = 4\sqrt{x} \quad | :4$$

$$2 = \sqrt{x}$$

$$x = 4 \rightarrow f(4) = 2 \cdot 4 - 8\sqrt{4} \rightarrow (4, -8)$$

$$f'(3) = 2 - \frac{8}{2\sqrt{3}} < 0, \quad f'(5) = 2 - \frac{8}{2\sqrt{5}} > 0$$

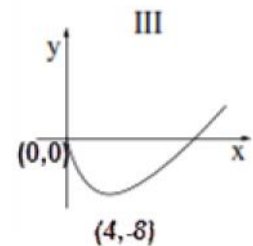
0	3	4	5	x
	-	0	+	y'
	↘	Min	↗	

(4, -8) :

$x > 4$, $0 < x < 4$:
 (0,0) $f(0) = 2 \cdot 0 - 8\sqrt{0} = 0$ - $x = 0$, y
 (0,0) :

(4, -8) , III

(0,0) $x \geq 0$ y



III :

$$f(x) = -\frac{x^3}{3} + 2x^2 + 5x + 6\frac{2}{3}$$

, B - A

$$f'(x) = -\frac{3x^2}{3} + 4x + 5$$

$$f'(x) = -x^2 + 4x + 5$$

$$-x^2 + 4x + 5 = 0$$

$$x_{1,2} = \frac{-4 \pm \sqrt{4^2 - 4 \cdot (-1) \cdot 5}}{2 \cdot (-1)} \rightarrow x_{1,2} = \frac{-4 \pm 6}{-2}$$

$$x_1 = \frac{-4 + 6}{-2} = \frac{2}{-2} = -1 \rightarrow f(-1) = -\frac{(-1)^3}{3} + 2 \cdot (-1)^2 + 5 \cdot (-1) + 6\frac{2}{3} \rightarrow \boxed{B(-1, 4)}$$

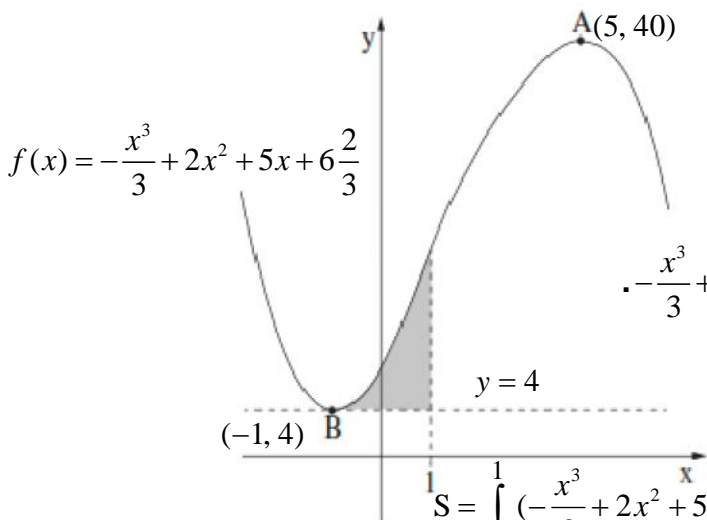
$$x_2 = \frac{-4 - 6}{-2} = \frac{-10}{-2} = 5 \rightarrow f(5) = -\frac{5^3}{3} + 2 \cdot 5^2 + 5 \cdot 5 + 6\frac{2}{3} \rightarrow \boxed{A(5, 40)}$$

. B(-1, 4) , A(5, 40) :

, f(x)

. y = 4 B(-1, 4)

. y = 4



$$-\frac{x^3}{3} + 2x^2 + 5x + 6\frac{2}{3} - 4 = -\frac{x^3}{3} + 2x^2 + 5x + 2\frac{2}{3} :$$

$$S = \int_{-1}^1 \left(-\frac{x^3}{3} + 2x^2 + 5x + 2\frac{2}{3}\right) dx$$

$$S = \left[-\frac{x^4}{12} + \frac{2x^3}{3} + \frac{5x^2}{2} + 2\frac{2}{3}x\right]_{-1}^1$$

$$S = \left(-\frac{1^4}{12} + \frac{2 \cdot 1^3}{3} + \frac{5 \cdot 1^2}{2} + 2\frac{2}{3} \cdot 1\right) - \left(-\frac{(-1)^4}{12} + \frac{2 \cdot (-1)^3}{3} + \frac{5 \cdot (-1)^2}{2} + 2\frac{2}{3} \cdot (-1)\right)$$

$$S = \frac{23}{4} - \left(-\frac{11}{12}\right) \rightarrow \boxed{S = 6\frac{2}{3}}$$

. " 6 2/3 :

$x > 0$

$$f(x) = x + \frac{1}{2} \cdot \frac{1}{x} + 5$$

$$K(x, x + \frac{1}{2} \cdot \frac{1}{x} + 5)$$

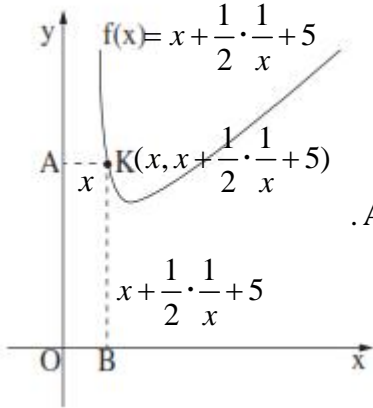
, K x - x -

: , AKBO

$$AK = x_K - x_A = x - 0 = x$$

$$KB = y_K - y_B = x + \frac{1}{2} \cdot \frac{1}{x} + 5 - 0 = x + \frac{1}{2} \cdot \frac{1}{x} + 5$$

$$KB = x + \frac{1}{2} \cdot \frac{1}{x} + 5, AK = x :$$



AKBO **היקף המלבן הניחום**

$$P(x) = 2AK + 2KB$$

$$P(x) = 2x + 2(x + \frac{1}{2} \cdot \frac{1}{x} + 5)$$

$$P(x) = 2x + 2x + \frac{1}{x} + 10$$

$$P(x) = 4x + \frac{1}{x} + 10$$

$$(P(x))' = 4 - \frac{1}{x^2} \rightarrow (P(x))' = \frac{4x^2 - 1}{x^2}$$

$$0 = \frac{4x^2 - 1}{x^2}$$

$$0 = 4x^2 - 1$$

$$1 = 4x^2$$

$$\frac{1}{4} = x^2$$

$$x_K = \frac{1}{2} \leftarrow x_K > 0$$

$$P'(0.1) = \frac{4 \cdot 0.1^2 - 1}{0.1^2} < 0, \quad P'(0.6) = \frac{4 \cdot 0.6^2 - 1}{0.6^2} > 0$$

0	0.4	0.5	0.6	x
	-	0	+	P'(x)
	↘	Min	↗	