

35382

20

• $-(\quad) y$, $-(\quad) x$: .
 • 27 ,

• $x + y = 27$:

• $\frac{100-25}{100} \cdot x = 0.75x$, , 25%

• , 3
 •

()		()	
$3 \cdot 0.75x = 2.25x$	3	$0.75x$	
y	1	y	

• $2.25x + y = 49.5$: , 49.5

:

$$\begin{cases} x + y = 27 \rightarrow y = 27 - x \\ 2.25x + y = 49.5 \end{cases}$$

$$2.25x + 27 - x = 49.5$$

$$1.25x = 22.5 \quad / : (1.25)$$

$$\boxed{x = 18}$$

$$y = 27 - 18 \rightarrow \boxed{y = 9}$$

• 9 , 18 :

• 9 - 9 () , .

$9 \cdot 18 + 9 \cdot 9 = 243$, ,

• $0.75 \cdot 18 = 13.5$, ,

$9 \cdot 13.5 + 9 \cdot 9 = 202.5$, ,

$243 - 202.5 = 40.5$ -

• $\frac{40.5}{243} \cdot 100\% = 16.67\%$:

16.67% - :

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$$\text{:BD} \quad y_B = 0 \quad \cdot y_B = 0 \quad \text{BD: } y = 3x - 18 \quad , x - \quad \text{B} \quad .$$

$$0 = 3x - 18$$

$$-3x = -18 \quad /: (-3)$$

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

$$\text{:DC} \quad y = 0 \quad \cdot y_C = 0 \quad \text{DC: } y = -x + 14 \quad , x - \quad \text{C}$$

$$0 = -x + 14$$

$$x = 14 \rightarrow \boxed{\text{C}(14, 0)}$$

$$\cdot \text{C}(14, 0) , \text{B}(6, 0) :$$

$$\cdot \text{DC: } y = -x + 14 \quad \cdot \text{BD: } y = 3x - 18 \quad \text{D} \quad .$$

$$\text{D} \begin{cases} y = 3x - 18 \\ y = -x + 14 \end{cases}$$

$$3x - 18 = -x + 14$$

$$4x = 32 \quad /: 4$$

$$x = 8 \rightarrow y = -8 + 14 = 6 \rightarrow \boxed{\text{D}(8, 6)}$$

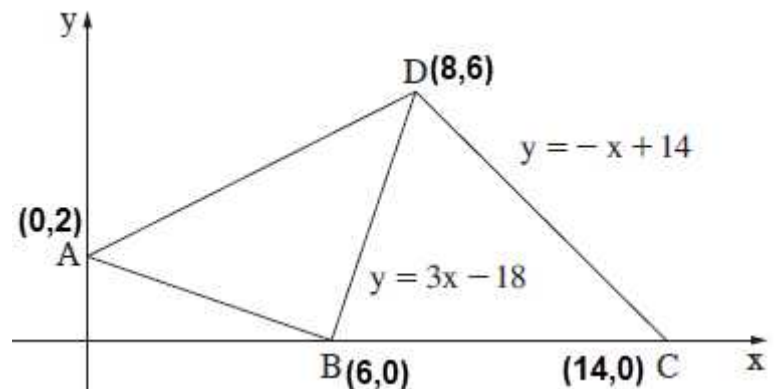
$$\cdot \text{D}(8, 6) :$$

$$m_{AB} = \frac{y_B - y_A}{x_B - x_A} = \frac{0 - 2}{6 - 0} = \frac{-2}{6} = -\frac{1}{3} : \text{AB}$$

$$\cdot 3 \quad \text{BD: } y = 3x - 18$$

$$\cdot (\quad) \quad , m_{AB} \cdot m_{BD} = -\frac{1}{3} \cdot 3 = -1$$

$$\cdot \text{BD} \quad \text{AB} \quad :$$



,BD AB (1)

$$\left. \begin{aligned} d_{BD} &= \sqrt{(8-6)^2 + (6-0)^2} = \sqrt{40} \\ d_{AB} &= \sqrt{(0-6)^2 + (2-0)^2} = \sqrt{40} \end{aligned} \right\} S_{ABD} = \frac{BD \cdot AD}{2} = \frac{\sqrt{40} \cdot \sqrt{40}}{2} = 20$$

. " 20 ΔABD :

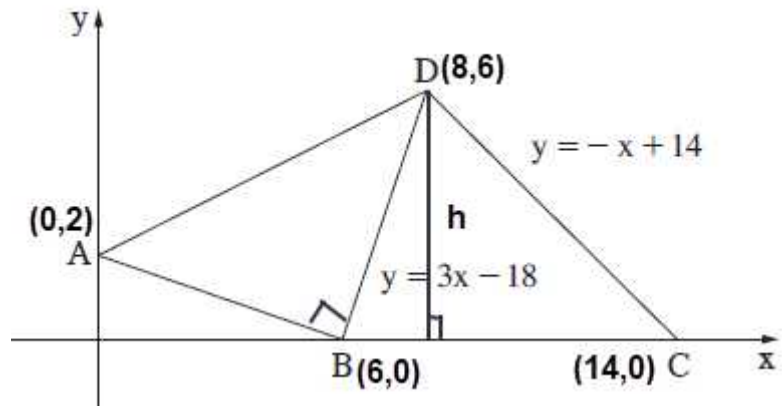
. ABCD

ΔABD , ΔBDC (2)

$$S_{BDC} = \frac{BC \cdot h}{2} = \frac{(14-6) \cdot (6-0)}{2} = \frac{8 \cdot 6}{2} = 24$$

$$. 20 + 24 = 44$$

. 44 ABCD :



.M AB .
 . M (1)

$$\left. \begin{aligned} x_M &= \frac{x_A + x_B}{2} = \frac{0+8}{2} = \frac{8}{2} = 4 \\ y_M &= \frac{y_A + y_B}{2} = \frac{2+0}{2} = \frac{2}{2} = 1 \end{aligned} \right\} \boxed{M(4,1)}$$

. M(4,1) :

(2)

$$R = d_{MA} = \sqrt{(4-0)^2 + (1-2)^2} = \sqrt{17}$$

. $\sqrt{17}$, M(4,1) ,

$$.(x-4)^2 + (y-1)^2 = 17 :$$

. AB .

$$m_{AB} = \frac{y_A - y_B}{x_A - x_B} = \frac{2-0}{0-8} = \frac{2}{-8} = -\frac{1}{4}$$

. $-\frac{1}{4}$ AB :

. B(8,0) .

, $m_{\text{mashik}} \cdot m_{BM} = -1$:

, BM - , BD

.4 () , $-\frac{1}{4}$ AB

.4 , B(8,0) ,

$$y - 0 = 4(x - 8)$$

$$\boxed{y = 4x - 32}$$

. $y = 4x - 32$:

. $y_D = y_A = 2$, x - AD (1) .

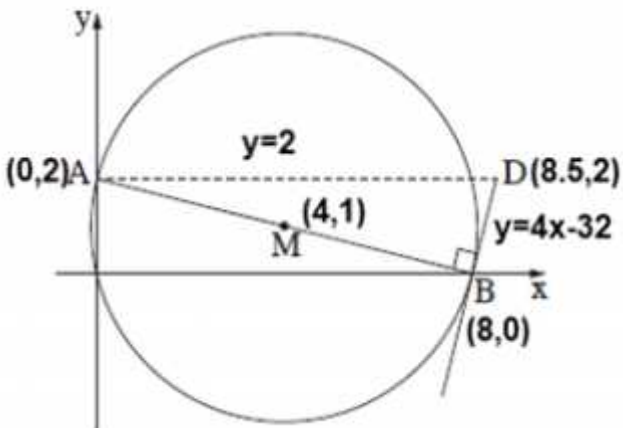
$$y_D = 2$$

$$2 = 4x - 32$$

$$-4x = -34 \quad /: (-4)$$

$$x = 8.5 \rightarrow \boxed{D(8.5, 2)}$$

. D(8.5, 2) :



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. ΔABD (2)

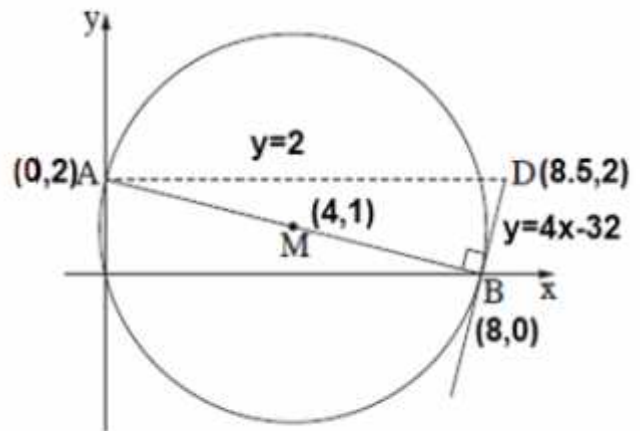
$$AD = x_D - x_A = 8.5 - 0 = 8.5$$

$$AB = 2R = 2\sqrt{17} = 8.246$$

$$d_{BD} = \sqrt{(8.5-8)^2 + (2-0)^2} = \sqrt{4.25} = 2.062$$

$$\cdot 8.5 + 2\sqrt{17} + \sqrt{4.25} = 18.81$$

.18.81 ΔABD :



$$f(x) = 0.25x + \frac{9}{x}$$

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

$$x \neq 0 :$$

$$f(x) = 0.25x + \frac{9}{x}$$

$$y' = 0.25 - \frac{9}{x^2}$$

$$0 = 0.25 - \frac{9}{x^2} \rightarrow 0 = 0.25x^2 - 9$$

$$-0.25x^2 = -9 \quad /: (-0.25)$$

$$x^2 = 36 \rightarrow x = \pm 6$$

$$f(6) = 0.25 \cdot 6 + \frac{9}{6} = 3 \rightarrow (6, 3), \quad f(-6) = 0.25 \cdot (-6) + \frac{9}{-6} = -3 \rightarrow (-6, -3)$$

$$f'(-7) = 0.25 - \frac{9}{(-7)^2} = 0.07 > 0, \quad f'(-5) = 0.25 - \frac{9}{(-5)^2} = -0.11 < 0$$

$$f'(5) = 0.25 - \frac{9}{5^2} = -0.11 < 0, \quad f'(7) = 0.25 - \frac{9}{7^2} = 0.07 > 0$$

-7	-6	-5	0	5	6	7	x
+	0	-		-	0	+	f'(x)
↗	Max	↘		↘	Min	↗	

$$(-6, -3), \quad (6, 3) :$$

$$x < -6 \quad x > 6 :$$

.() x - , .

. y = 0 x -

$$0 = 0.25x + \frac{9}{x} \quad / \cdot x$$

$$0 = 0.25x^2 + 9$$

$$-0.25x^2 = 9 \quad / : (-0.25)$$

$$x^2 = -36$$

. x -

. x -

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. I , .

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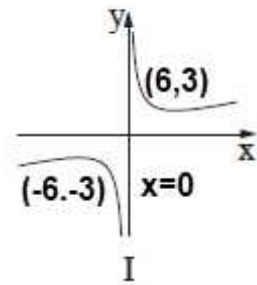
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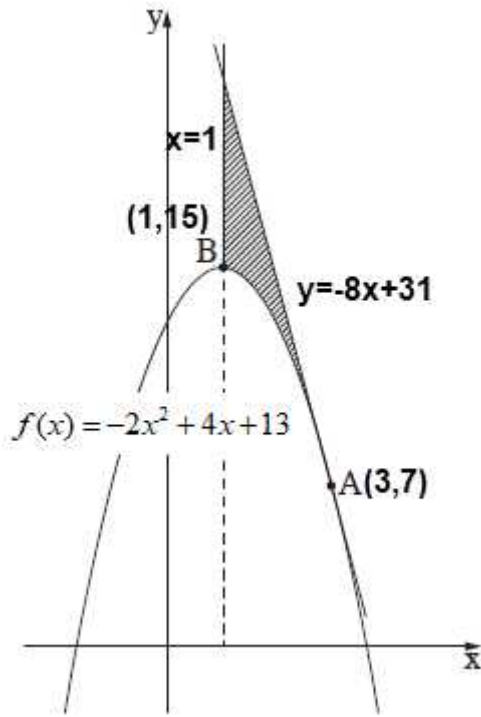
. x = 0

, x -

$$f(x) = 0.25x + \frac{9}{x}$$



. I :



.B $f(x) = -2x^2 + 4x + 13$.

. $f'(x) = 0$

$f'(x) = -4x + 4$

$-4x + 4 = 0$

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

$x = 1 \rightarrow y = -2 \cdot 1^2 + 4 \cdot 1 + 13 = 15 \rightarrow \boxed{B(1, 15)}$

.B(1, 15) :

. $x = 3$, A (1)

$f'(x) = -4x + 4$

$m(3) = f'(3) = -4 \cdot 3 + 4 = -8$

. -8 :

. A -8 , (2)

. A(3, 7) $f(3) = -2 \cdot 3^2 + 4 \cdot 3 + 13 = 7$

$y - 7 = -8(x - 3)$

$y - 7 = -8x + 24$

$\boxed{y = -8x + 31}$

. $y = -8x + 31$:

. $x = 1$,

, y -

$-8x + 31 - (-2x^2 + 4x + 13) = -8x + 31 + 2x^2 - 4x - 13 = 2x^2 - 12x + 18$

$S = \int_1^3 (2x^2 - 12x + 18) dx$

$S = \left[\frac{2x^3}{3} - \frac{12x^2}{2} + 18x \right]_1^3$

$S = \left(\frac{2 \cdot 3^3}{3} - \frac{12 \cdot 3^2}{2} + 18 \cdot 3 \right) - \left(\frac{2 \cdot 1^3}{3} - \frac{12 \cdot 1^2}{2} + 18 \cdot 1 \right)$

$S = 18 - \frac{38}{3}$

$\boxed{S = 5\frac{1}{3}}$

. " $5\frac{1}{3}$:

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מקסימום סכום שני המספרים $\sqrt{x} - (-x)$:

$$f(x) = \sqrt{x} + (-x)$$

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

$$f'(x) = \frac{1}{2\sqrt{x}} - 1$$

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

$$2\sqrt{x} = 1 \rightarrow \sqrt{x} = 0.5 \quad ()^2$$

$$x = 0.25$$

($x \geq 0$) :

$$f'(0.2) = \frac{1}{2\sqrt{0.2}} - 1 = 0.12 > 0, \quad f'(0.3) = \frac{1}{2\sqrt{0.3}} - 1 = -0.09 < 0$$

0	0.2	0.25	0.3	x⁰¹
	+	0	-	$f'(x)$
	↗	Max	↘	

· $(-x) - \sqrt{x}$ $x = 0.25$:

· $f(0.25) = \sqrt{0.25} - 0.25 = 0.25$: $x = 0.25$.

· () 0.25 :