

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

$$2 \cdot 0.75x = 1.5x$$

$$3x$$

( )		( )	
$2 \cdot 0.75x = 1.5x$	$0.75x$	2	
$3x$	$x$	3	

$$1.5x + 3x = 288$$

$$4.5x = 288 \quad /: 4.5$$

$$x = 64$$

$$0.75 \cdot 64 = 48$$

$$48$$

$$2 \cdot 48 + 6 \cdot 64 = 480$$

$$480 - 288 = 192$$

$$\frac{2}{3} \cdot 100\% = 66.67\%$$

$$\frac{192}{288} = \frac{2}{3}$$

$$66.67\%$$

•  $y = -\frac{1}{3}x + 8$  : AB

$y = 0$  •  $y_A = 0$  , x - A .

$$0 = -\frac{1}{3}x + 8$$

$$\frac{1}{3}x = 8 \quad /: (\frac{1}{3})$$

$$x = 24 \rightarrow \boxed{A(24, 0)}$$

: AB

$x = 0$  •  $x_B = 0$  , y - B

$$\bullet y_B = -\frac{1}{3} \cdot 0 + 8 = 8 \rightarrow \rightarrow \boxed{B(0, 8)}$$

• B(0, 8) , A(24, 0) :

E. • AB E .

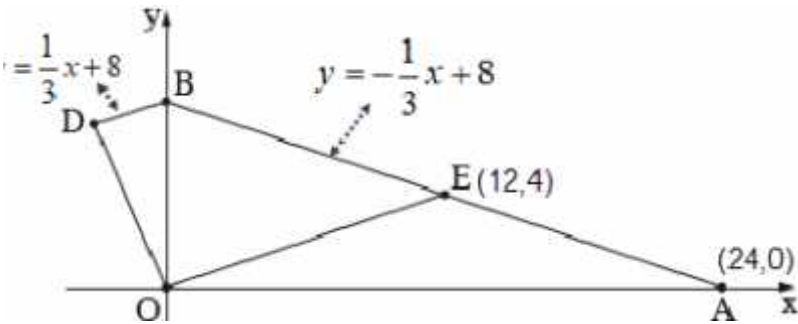
. D

$$\left. \begin{aligned} x_E &= \frac{x_B + x_A}{2} = \frac{0 + 24}{2} = 12 \\ y_E &= \frac{y_B + y_A}{2} = \frac{8 + 0}{2} = 4 \end{aligned} \right\} \boxed{E(12, 4)}$$

• OE

$$m_{OE} = \frac{y_E - y_O}{x_E - x_O} = \frac{4 - 0}{12 - 0} = \frac{4}{12} = \frac{1}{3}$$

•  $\frac{1}{3}$  OE :



•  $\frac{1}{3}$  , OE BD .

•  $\frac{1}{3}$  , B(0, 8) , BD

$$y - 8 = \frac{1}{3}(x - 0) \rightarrow \boxed{y = \frac{1}{3}x + 8}$$

•  $y = \frac{1}{3}x + 8$  BD :

"



$$\cdot x_D = -3 \cdot$$

:BD

$$x = -3 \quad (1)$$

$$y_D = \frac{1}{3} \cdot (-3) + 8 = 7 \rightarrow \rightarrow \boxed{D(-3, 7)}$$

$$\cdot y_D = 7 :$$

.BDO

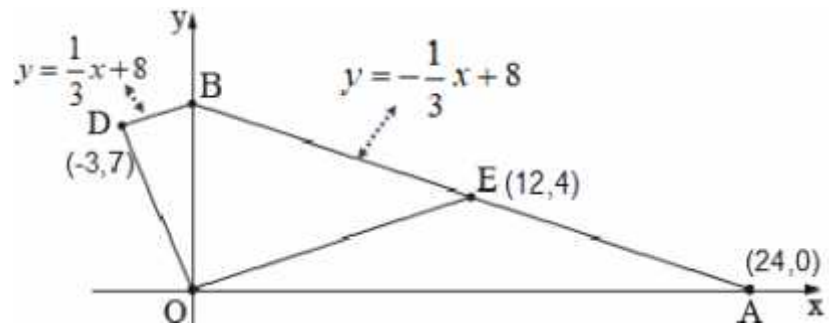
(2)

$$\left. \begin{aligned} d_{OB} &= y_B - y_O = 8 - 0 = 8 \\ d_{DO} &= \sqrt{(-3-0)^2 + (7-0)^2} = \sqrt{58} \\ d_{DB} &= \sqrt{(-3-0)^2 + (7-8)^2} = \sqrt{10} \end{aligned} \right\} P_{BDO} = 8 + \sqrt{58} + \sqrt{10} = 18.78$$

$$\therefore 18.78$$

BDO

:



•  $y = -\frac{4}{3}x + 38\frac{2}{3}$  :

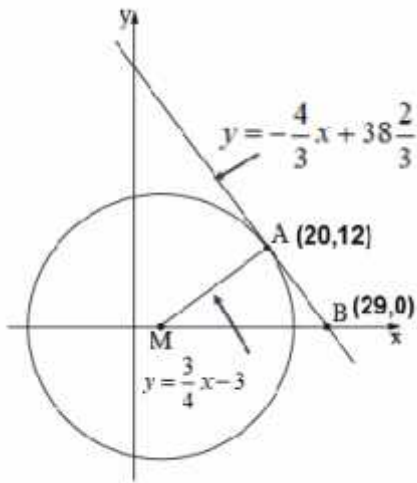
$y = 0$  •  $y_B = 0$  ,  $x$  - B .

$$0 = -\frac{4}{3}x + 38\frac{2}{3}$$

$$\frac{4}{3}x = 38\frac{2}{3} \quad / : (\frac{4}{3})$$

$$x = 29 \rightarrow \boxed{B(29, 0)}$$

• B(29, 0) :



• , AM .

•  $-\frac{4}{3}$  , AM (1)

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

•  $\frac{3}{4}$  ( ) AM

•  $\frac{3}{4}$  AM :

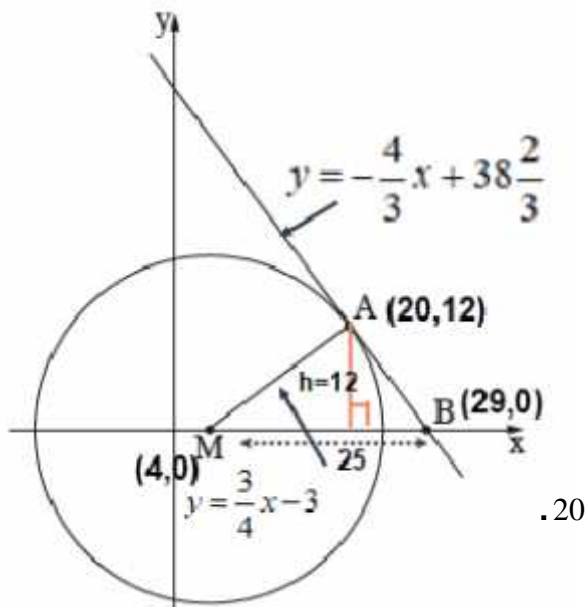
•  $\frac{3}{4}$  , A(20, 12) , AM (2)

$$y - 12 = \frac{3}{4}(x - 20)$$

$$y - 12 = \frac{3}{4}x - 15$$

$$\boxed{y = \frac{3}{4}x - 3}$$

•  $y = \frac{3}{4}x - 3$  AM :



$$.x - \quad M$$

$$.AM \quad y = 0 \quad (1)$$

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

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

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

$$.M(4, 0) :$$

(2)

$$R = d_{MA} = \sqrt{(20-4)^2 + (12-0)^2} = 20$$

$$.15 \quad :$$

$$, M(4, 0) ,$$

$$.(x-4)^2 + y^2 = 400:$$

.  $\Delta MAB$

$$S_{\Delta MAB} = \frac{MB \cdot h_{MB}}{2}$$

$$MB = x_B - x_M = 29 - 4 = 25$$

$$h_{MB} = y_A - 0 = 12 - 0 = 12$$

$$S_{\Delta MAB} = \frac{25 \cdot 12}{2}$$

$$\boxed{S_{\Delta MAB} = 150}$$

$$. " \quad 150 \quad \Delta MAB \quad :$$

$$f(x) = 3x + \frac{12}{x}$$

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

$$x \neq 0$$

$$f'(x) = 3 - \frac{12}{x^2}$$

$$0 = 3 - \frac{12}{x^2} \quad / \cdot x^2$$

$$0 = 3x^2 - 12$$

$$12 = 3x^2 \quad / : 3$$

$$4 = x^2$$

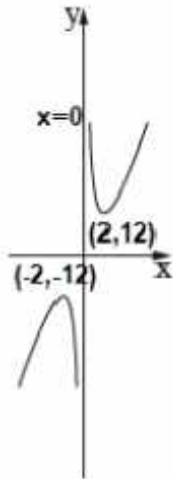
$$x = 2 \rightarrow y = 3 \cdot 2 + \frac{12}{2} = 12 \rightarrow (2, 12)$$

$$x = -2 \rightarrow y = 3 \cdot (-2) + \frac{12}{-2} = -12 \rightarrow (-2, -12)$$

$$\left. \begin{array}{l} f'(1) = 3 - \frac{12}{1^2} < 0 \\ f'(3) = 3 - \frac{12}{3^2} > 0 \end{array} \right\} (2, 12) \text{Min}$$

$$\left. \begin{array}{l} f'(-3) = 3 - \frac{12}{(-3)^2} > 0 \\ f'(-1) = 3 - \frac{12}{(-1)^2} < 0 \end{array} \right\} (-2, -12) \text{Max}$$

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



III

-3	-2	-1	0	1	2	3	x
+	0	-		-	0	+	f'(x)
↗	Max	↘		↘	Min	↗	

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

III

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

$x = 0$

$f(x)$  III :

$y = 12$   $(2, 12)$  :

"

$$f(x) = -3x^2 + 24x - 21$$

$x = 2$  , A (1)

$$f'(x) = -6x + 24$$

$$m(2) = f'(2) = -6 \cdot 2 + 24 = 12$$

12 :

A 12 , (2)

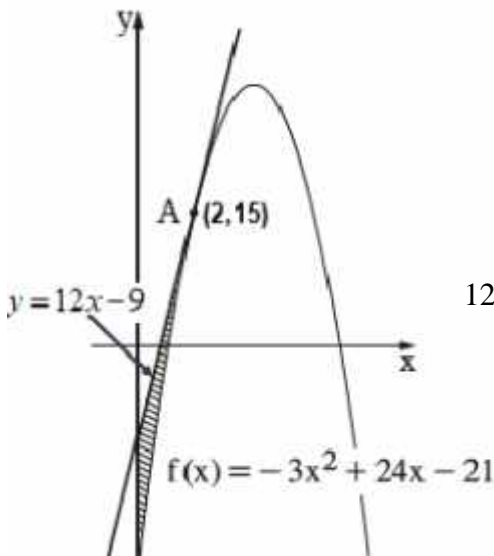
A(2,15)  $f(2) = -3 \cdot 2^2 + 24 \cdot 2 - 21 = 15$

$$y - 15 = 12(x - 2)$$

$$y - 15 = 12x - 24$$

$$y = 12x - 9$$

$y = 12x - 9$  :



$$12x - 9 - (-3x^2 + 24x - 21) = 12x - 9 + 3x^2 - 24x + 21 = 3x^2 - 12x + 12$$

$$S = \int_0^2 (3x^2 - 12x + 12) dx$$

$$S = \left[ \frac{3x^3}{3} - \frac{12x^2}{2} + 12x \right]_0^2$$

$$S = \left( \frac{3 \cdot 2^3}{3} - \frac{12 \cdot 2^2}{2} + 12 \cdot 2 \right) - \left( \frac{3 \cdot 0^3}{3} - \frac{12 \cdot 0^2}{2} + 12 \cdot 0 \right)$$

$$S = 8 - 0$$

$$S = 8$$

" 8 :



**מקסימום אורך הקטע AB :**

$A(x, 6\sqrt{x})$        $f(x) = 6\sqrt{x}$       A

$x_B = x_A$  ,  $y$  -      AB

$B(x, 2x)$        $y = 2x$       B

$AB = y_A - y_B$

$AB = 6\sqrt{x} - 2x$

$AB'(x) = \frac{6}{2\sqrt{x}} - 2$

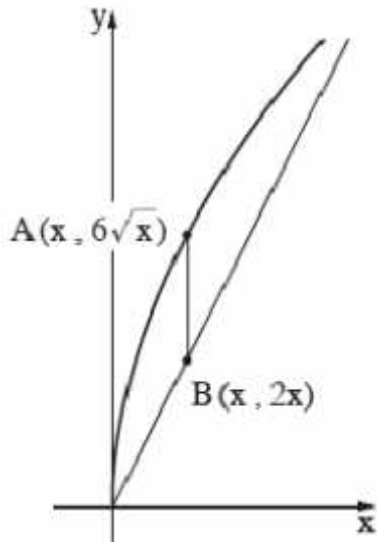
$0 = \frac{6}{2\sqrt{x}} - 2 \rightarrow 0 = 6 - 4\sqrt{x}$

$4\sqrt{x} = 6 \rightarrow \sqrt{x} = 1.5 \quad ( )^2$

$x = 2.25$

:

$AB'(1) = \frac{6}{2\sqrt{1}} - 2 = 1 > 0$  ,  $AB'(3) = \frac{6}{2\sqrt{3}} - 2 = -0.27 < 0$



0	2	2.25	3	$x$
	+	0	-	$AB'(x)$
	↖	<b>Max</b>	↘	

AB       $x = 2.25$  :

$AB = 6\sqrt{2.25} - 2 \cdot 2.25 = 4.5$  :       $x = 2.25$  .

4.5      AB      :