

20% , 3 -
20% , (x-5)

()	()	()	
2040	$\frac{2040}{x}$	x	
$5 \cdot \frac{1836}{x} = \frac{9180}{x}$	$(\frac{100-10}{100}) \cdot \frac{2040}{x} = 0.9 \cdot \frac{2040}{x} = \frac{1836}{x}$	5	10%
$(x-5) \cdot \frac{2448}{x} = \frac{2448(x-5)}{x}$	$(\frac{100+20}{100}) \cdot \frac{2040}{x} = 1.2 \cdot \frac{2040}{x} = \frac{2448}{x}$	x-5	20%

2,412

$$\frac{9180}{x} + \frac{2448(x-5)}{x} = 2412 :$$

$$\frac{9180}{x} + \frac{2448(x-5)}{x} = 2412 \quad / \cdot x$$

$$9180 + 2448(x-5) = 2412x$$

$$9180 + 2448x - 12240 = 2412x$$

$$-3060 = -36x \quad / : (-36)$$

$$\boxed{x = 85}$$

$$\frac{2040}{85} = 24 \quad 85$$

24 :

$$.15 \cdot 24 = 360, \quad 15 \quad (1) .$$

$$.2040 + 360 = 2400$$

$$. \quad 2,400 \quad :$$

$$. \quad 10\% \quad , \quad 15 \quad (2)$$

$$. \quad , \left(\frac{100+10}{100} \right) \cdot 24 = 1.1 \cdot 24 = 26.4$$

$$.15 \cdot 26.4 = 396 \quad 15$$

$$.2412 + 396 = 2808, \quad , \quad ,$$

$$.2808 - 2400 = 408, \quad ,$$

$$. \quad \frac{408}{2400} \cdot 100\% = 17\% :$$

$$. 17\% \quad :$$

. AB .

$$m_{AB} = \frac{24-0}{9-1} = \frac{24}{8} = 3$$

. B(1,0) , $m_{AB} = 3$: , AB

$$y-0 = 3(x-1)$$

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

. $y = 3x - 3$ AB :

. D .

$$\begin{cases} y = 3x - 3 \\ y = 2x \end{cases}$$

$$3x - 3 = 2x$$

$$x = 3 \rightarrow y = 2 \cdot 3 = 6 \rightarrow \boxed{D(3, 6)}$$

. D(3, 6) :

E , $y_C = 0$ x - C .

y_E (1)

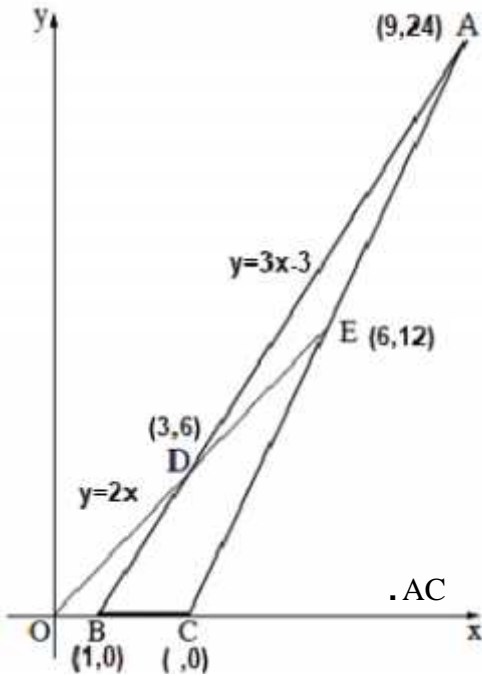
$$y_E = \frac{y_A + y_C}{2} = \frac{24 + 0}{2} = 12$$

. $y_E = 12$:

. $y = 2x$ E , x_E (2)

$$12 = 2x \rightarrow x = 6 \rightarrow \boxed{x_E = 6}$$

. $x_E = 6$:



.AC

E

x -

C

.

$$\cdot x_C \quad (1)$$

$$6 = \frac{9 + x_C}{2}$$

$$12 = 9 + x_C$$

$$x_C = 3$$

. y -

$$DC, \quad x_C = x_D = 3$$

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$$\cdot \Delta ABCD \quad (2)$$

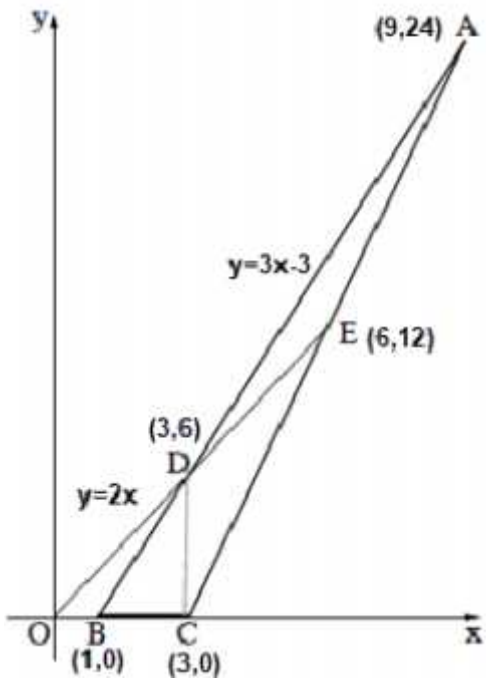
$$d_{BC} = 3 - 1 = 2$$

$$d_{CD} = 6 - 0 = 6$$

$$d_{BD} = \sqrt{(3-1)^2 + (6-0)^2} = \sqrt{40} \approx 6.325$$

$$P_{\Delta ABCD} = 2 + 6 + 6.325 = 14.325$$

$$\therefore 14.325 \quad \Delta ABCD \quad :$$



$\cdot \sqrt{10}$ $M(4, 3)$, $(x-4)^2 + (y-3)^2 = 10$.
 $\cdot y_A = y_B = 0$, $B - A$ $x -$

$(x-4)^2 + (0-3)^2 = 10$

$(x-4)^2 = 1$

$x-4=1 \rightarrow x=5$ } $\boxed{B(5, 0)}$, $\boxed{A(3, 0)}$
 $x-4=-1 \rightarrow x=3$

• $B(5, 0)$, $A(3, 0)$:

• AD $M(4, 3)$, AD .

$4 = \frac{3+x_D}{2} \quad / \cdot 2$
 $8 = 3 + x_D$
 $x_D = 5$
 $y_D = 6$

• $D(5, 6)$:

• $m_{MD} = \frac{6-3}{5-4} = \frac{3}{1} = 3$ MD .

• $m_{mashik} \cdot m_{MD} = -1$:

• $m_{mashik} \cdot 3 = -1$, MD

• $m_{mashik} \cdot 3 = -1 \rightarrow -\frac{1}{3}$ ()

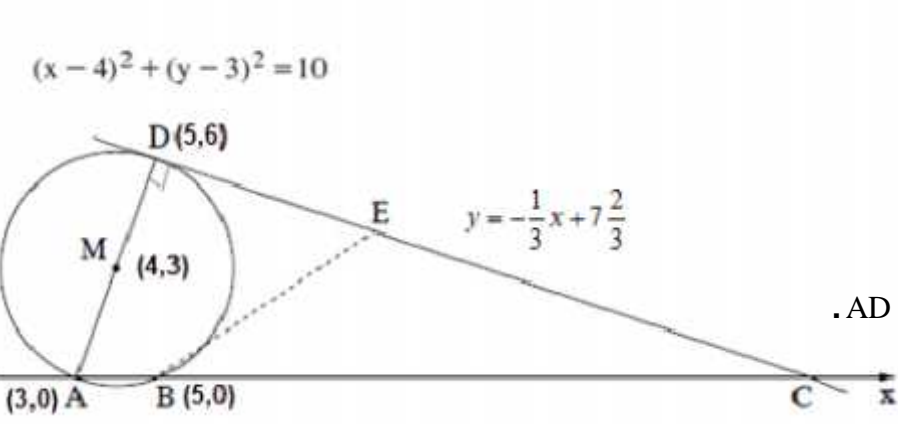
• $(-\frac{1}{3})$, $D(5, 6)$

$y-6 = -\frac{1}{3}(x-5)$

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

$\boxed{y = -\frac{1}{3}x + 7\frac{2}{3}}$

• $y = -\frac{1}{3}x + 7\frac{2}{3}$:



$$x_E = 11, y = -\frac{1}{3}x + 7\frac{2}{3} \quad E$$

$$x = 11 \quad (1)$$

$$y_E = -\frac{1}{3} \cdot 11 + 7\frac{2}{3} = 4$$

$$y_E = 4 :$$

$$\Delta BEC \quad (2)$$

$$y_C = 0, x = , C$$

$$0 = -\frac{1}{3}x + 7\frac{2}{3}$$

$$\frac{1}{3}x = 7\frac{2}{3} \quad /: \frac{1}{3}$$

$$x = 23 \rightarrow C(23, 0)$$

$$\Delta BEC$$

$$x -$$

$$x -$$

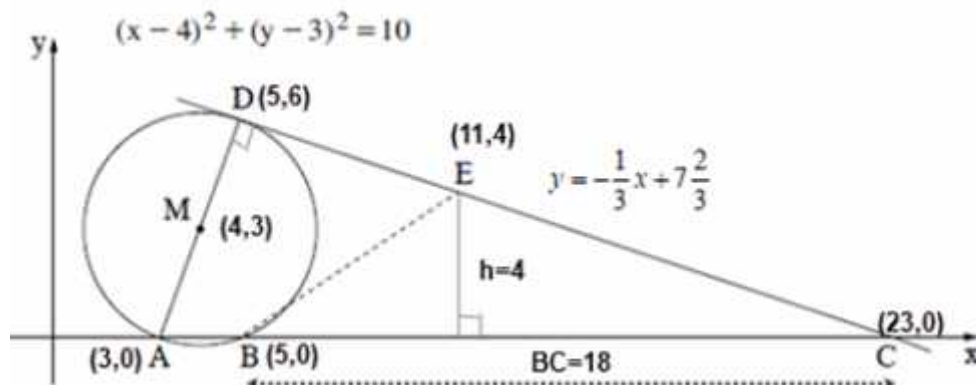
$$BC$$

$$d_{BC} = x_C - x_B = 23 - 5 = 18$$

$$h_{BC} = y_E - 0 = 4 - 0 = 4$$

$$S_{\Delta BEC} = \frac{BC \cdot h}{2} = \frac{18 \cdot 4}{2} = 36$$

$$" \quad 36 \quad BEC \quad :$$



$$f(x) = 12\sqrt{x} - 3x$$

$x \geq 0$:

$x \geq 0$:

$x = 0$ $y =$

$$f(0) = 12\sqrt{0} - 3 \cdot 0 = 0 \rightarrow (0, 0)$$

$(0, 0)$:

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

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

$$0 = 12 - 6\sqrt{x}$$

$$6\sqrt{x} = 12 \quad / : 6$$

$$\sqrt{x} = 2$$

$$x = 4 \rightarrow f(4) = 12 \cdot \sqrt{4} - 3 \cdot 4 = 12 \rightarrow (4, 12)$$

$$f'(3) = \frac{12}{2\sqrt{3}} - 3 > 0, \quad f'(5) = \frac{12}{2\sqrt{5}} - 3 < 0$$

0	3	4	5	x
	+	0	-	$f'(x)$
	↗	Max	↘	

$(4, 12)$:

:

$x > 4$, $0 < x < 4$:

35382

19

.B - A

x -

$$, f(x) = -2x^2 + 16x - 14$$

$$, f(x) = 0$$

$$-2x^2 + 16x - 14 = 0$$

$$x_{1,2} = \frac{-16 \pm \sqrt{16^2 - 4 \cdot (-2) \cdot (-14)}}{2 \cdot (-2)}$$

$$x_{1,2} = \frac{-16 \pm 12}{-4}$$

$$x_1 = \frac{-16 + 12}{-4} = \frac{-4}{-4} = 1 \rightarrow \boxed{A(1, 0)}$$

$$x_2 = \frac{-16 - 12}{-4} = \frac{-28}{-4} = 7 \rightarrow \boxed{B(7, 0)}$$

.B(7, 0) , A(1, 0) :

$$. f'(x) = 0$$

$$\boxed{f'(x) = -4x + 16}$$

$$0 = -4x + 16$$

$$4x = 16 \quad /: 4$$

$$x = 4 \rightarrow y = -2 \cdot 4^2 + 16 \cdot 4 - 14 \rightarrow \boxed{C(4, 18)}$$

.C(4, 18) :

$$. y = 18$$

$$. y = 18$$

$$S = \int_4^7 (18 - (-2x^2 + 16x - 14)) dx = \int_4^7 (18 + 2x^2 - 16x + 14) dx$$

$$S = \int_4^7 (32 + 2x^2 - 16x) dx = 32x + \frac{2x^3}{3} - \frac{16x^2}{2} \Big|_4^7$$

$$S = \left(32 \cdot 7 + \frac{2 \cdot 7^3}{3} - \frac{16 \cdot 7^2}{2} \right) - \left(32 \cdot 4 + \frac{2 \cdot 4^3}{3} - \frac{16 \cdot 4^2}{2} \right)$$

$$S = \frac{182}{3} - \frac{128}{3} \rightarrow \boxed{S = 18}$$

. " 18 :

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$\Delta ABC = 16$

$CB = x$

$$S_{\Delta ABC} = \frac{CB \cdot AC}{2}$$

$$16 = \frac{x \cdot AC}{2} \quad / \cdot 2$$

$$32 = x \cdot AC \quad / : x$$

$$\boxed{\frac{32}{x} = AC}$$

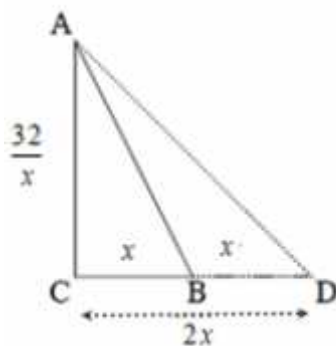
$AC = \frac{32}{x}$

AC + CD

פונקציה

$$f(x) = \frac{32}{x} + x + x$$

$$\boxed{f(x) = \frac{32}{x} + 2x}$$



$$\boxed{f'(x) = -\frac{32}{x^2} + 2}$$

$$0 = -\frac{32}{x^2} + 2 \quad / \cdot x^2$$

$$0 = -32 + 2x^2$$

$$32 = 2x^2$$

$$16 = x^2$$

$$\boxed{x = 4} \quad \leftarrow x > 0$$

$(x > 0)$

$$f'(3) = -\frac{32}{3^2} + 2 < 0, \quad f'(5) = -\frac{32}{5^2} + 2 > 0$$

0	3	4	5	x
	-	0	+	y'
	↘	Min	↗	

AC + CD, $x = 4$

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