

35481

20

, ()² , () - x .

.() - $\frac{1}{2}x$

.75% · x = 0.75x , 25% -

.() 0.75x , () $\frac{1}{2}x$:

· , , - y (1) .

.(, 16) , , - y+16

.(, 2) , , - y+14 -

()	()	()	
xy	x	y	
0.5x · (y+16)	$\frac{1}{2}x$	y+16	
0.75x · (y+14)	0.75x	y+14	

· 1,560

· xy = 1560

· 2,912

· 0.5x · (y+16) + 0.75x · (y+14) = 2912

:

$$\begin{cases} xy = 1560 \\ 0.5x \cdot (y+16) + 0.75x \cdot (y+14) = 2912 \end{cases}$$

$$0.5xy + 8x + 0.75xy + 10.5x = 2912$$

$$0.5 \cdot 1560 + 0.75 \cdot 1560 + 18.5x = 2912 \quad \leftarrow xy = 1560$$

$$18.5x = 962 \quad /:18.5$$

$$\boxed{x = 52} \rightarrow y = \frac{1560}{52} \rightarrow \boxed{y = 30}$$

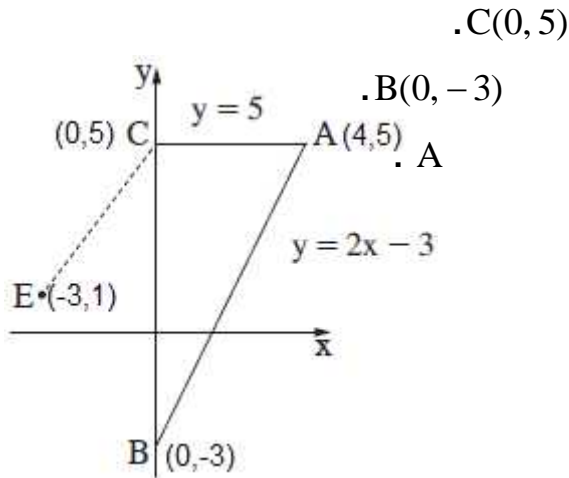
· 52 :

"

$$\begin{aligned}
 & \cdot 30 + 14 = 44 \quad , \quad \cdot 30 \quad (\quad) \quad (2) \\
 & \quad , \quad 30 + 16 = 46 \quad , \quad , \\
 & \quad , \quad , \quad 46 + 44 = 90 \\
 & \quad \cdot \quad 90 - 30 = 60 - \\
 & \quad \cdot \frac{60}{30} \cdot 100\% = 200\% - \quad , \\
 & \quad \cdot \quad (\quad) 200\% - \quad :
 \end{aligned}$$

35481

20



, y - y = 5 C .

, y - y = 2x - 3 B

, y = 2x - 3 y = 5

5 = 2x - 3

8 = 2x /: 2

x = 4 → A(4, 5)

. A(4, 5) , B(3, 0) , C(0, 5) :

. CE = 5 - E(x, 1) .

5 = $\sqrt{(x-0)^2 + (1-5)^2}$

25 = x² + 16

9 = x²

3 = x not o.k. ← x_E < 0

-3 = x → x_E = -3 o.k.

. x_E = -3 :

, AB

,
(.

,) . ∠ACB = 90°

$$\left. \begin{aligned} x &= \frac{4+0}{2} = 2 \\ y &= \frac{5+(-3)}{2} = 1 \end{aligned} \right\} \text{ D(2, 1) }$$

R = BD

R = $\sqrt{(0-2)^2 + (-3-1)^2} = \sqrt{20}$

. (x - 2)² + (y - 1)² = 20 :

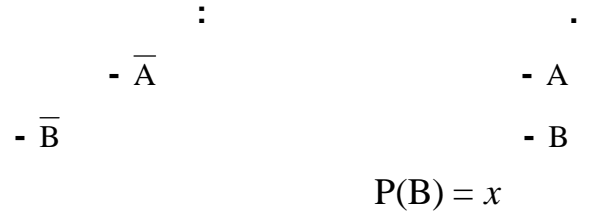
E

, ED = $\sqrt{(-3-2)^2 + (1-1)^2} = \sqrt{25} = 5$.

. ABC

E :

"



- (1) $P(A) = 0.8 \rightarrow P(\bar{A}) = 0.2$
- (2) $P(A/\bar{B}) = 0.75 \rightarrow P(\bar{A}/\bar{B}) = 0.25$
- (3) $P(A/B) = \frac{5}{6} \rightarrow P(\bar{A}/B) = \frac{1}{6}$
-

(3) $P(A/B) = \frac{5}{6}$

$$P(A/B) = \frac{P(A \cap B)}{P(B)}$$

$$\frac{5}{6} = \frac{P(A \cap B)}{x}$$

$$P(A \cap B) = \frac{5}{6}x$$

(2) $P(A/\bar{B}) = 0.75$

$$P(A/\bar{B}) = \frac{P(A \cap \bar{B})}{P(\bar{B})}$$

$$0.75 = \frac{P(A \cap \bar{B})}{1-x}$$

$$P(A \cap \bar{B}) = 0.75(1-x)$$

:

	\bar{A}	A	
x		$\frac{5}{6}x$	- B
$1-x$		$0.75(1-x)$	- \bar{B}
1	0.2	0.8	

$$\frac{5}{6}x + 0.75(1-x) = 0.8$$

$$\frac{5}{6}x + 0.75 - 0.75x = 0.8$$

$$\frac{1}{12}x = 0.05$$

$$x = 0.6$$

.0.6 : (1)

"

:

	\bar{A}	A	
0.6	0.1	0.5	-B
0.4	0.1	0.3	\bar{B}
1	0.2	0.8	

$P(A \cap B) = 0.5$, (2)

0.5 :

$$P(B / A) = \frac{P(B \cap A)}{P(A)} = \frac{0.5}{0.8} = \frac{5}{8}$$

$\frac{5}{8}$:

:"

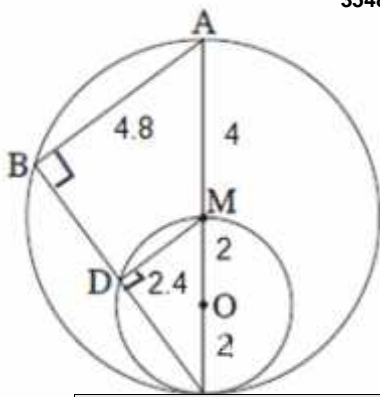
5 - 3 "

$P_3(5)$

$k = 3, n = 5, p = P(A \cap \bar{B}) = 0.3$,

$$P_5(3) = \binom{5}{3} 0.3^3 (1-0.3)^{5-3} = 10 \cdot 0.3^3 \cdot 0.7^2 = 0.1323$$

0.1323 :



. C -

.3

O.2

M .1

$DM = 2.4$.5 $CO = 2$.4 .

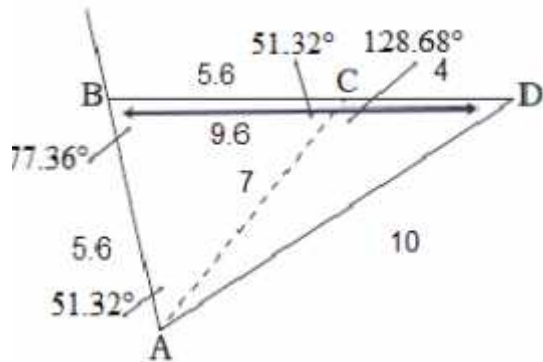
$\Delta ABC \sim \Delta MDC$ (2) $\sphericalangle ABC = \sphericalangle MDC$ (1) . : "

$\frac{S_{\Delta ABC}}{S_{\Delta MDC}}$ (2) ΔABC

DM (1) .

BC .

	M	6	1
	$\sphericalangle ABC = 90^\circ$	7	6
	O	8	2
	$\sphericalangle CDM = 90^\circ$	9	8
	() $\sphericalangle ABC = \sphericalangle MDC$	10	9,7
(1) . . .			
	() $\sphericalangle A = \sphericalangle A$	11	9,7
	$\Delta ABC \sim \Delta MDC$	12	11,10
(2) . . .			
	AM = MC	13	6
	DM AB	14	10
	ΔABC DM	15	14,13
(1) . . .			
	$\frac{DM}{AB} = \frac{1}{2}$	16	15
	$\frac{S_{\Delta ABC}}{S_{\Delta MDC}} = 4$	17	16,12
(2) . . .			
	CO = 2	18	4
	AC = 8	19	18,8,6,3
	DM = 2.4	20	5
	AB = 4.8	21	20,16
ΔABC	BC = 6.4	22	21,19,7
. . .			



ΔACD -
 $(AD)^2 = (AC)^2 + (CD)^2 - 2 \cdot AC \cdot CD \cdot \cos \sphericalangle ACD$

$$\cos \sphericalangle ACD = \frac{(AC)^2 + (CD)^2 - (AD)^2}{2 \cdot AC \cdot CD}$$

$$\cos \sphericalangle ACD = \frac{4^2 + 7^2 - 10^2}{2 \cdot 4 \cdot 7}$$

$$\sphericalangle ACD = 128.68^\circ$$

$\sphericalangle ACD = 128.68^\circ$:

$AB = BC$:

$\sphericalangle BCA = \sphericalangle BAC = 180^\circ - 128.68^\circ = 51.32^\circ$

$\sphericalangle CBA = 180^\circ - 2 \cdot 51.32^\circ = 77.36^\circ$

(.) ΔABC

$$\frac{AB}{\sin 51.32^\circ} = \frac{AC}{\sin 77.36^\circ}$$

$$AB = \frac{7 \cdot \sin 51.32^\circ}{\sin 77.36^\circ}$$

$$AB = 5.6 \rightarrow AD = 5.6$$

$$\rightarrow BD = 9.6$$

$$S_{\Delta ABD} = \frac{AB \cdot BD \cdot \sin \sphericalangle CBA}{2}$$

$$S_{\Delta ABD} = \frac{5.6 \cdot 9.6 \cdot \sin 77.36^\circ}{2}$$

$$S_{\Delta ABD} = 26.23$$

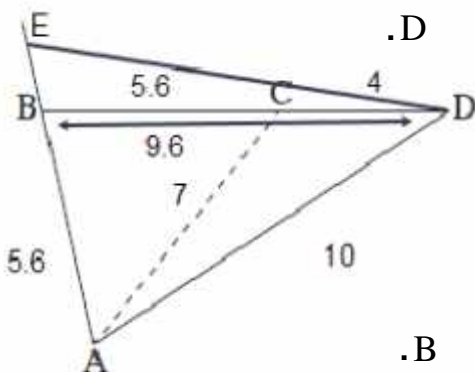
$26.23 \Delta ABD$:

ΔEBD - ΔABD - , $\frac{S_{\Delta ABD}}{S_{\Delta EBD}} = \frac{4}{1}$:

$AB : EB = 4 : 1$

$EB = 5.6 : 4 = 1.4$:

$1.4 EB$:



AB , AB

"

E

,

-

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

$x^2 \neq 0 \rightarrow x \neq 0 :$ (1)

$x \neq 0 :$

(2)

$$f'(x) = \frac{0 - 3 \cdot 2x}{x^4} - 6$$

$$f'(x) = \frac{-6x - 6x^4}{x^4}$$

$$0 = -6x(1 + x^3)$$

~~$x = 0$~~ $\leftarrow x \neq 0$

$$x^3 = -1 \rightarrow x = -1 \rightarrow (-1, 9)$$

$f'(x)$ _____ ()

	-1		0		x
-		+	-	-	$f'(x)$
↘	Min	↗	↘	↘	

(-1, 9)

(3)

$y = 0 : x$

$$0 = \frac{3}{x^2} - 6x$$

$$0 = 3 - 6x^3$$

$$6x^3 = 3$$

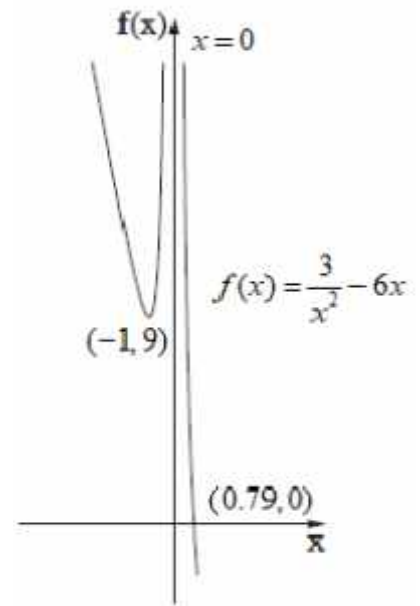
$$x^3 = 0.5$$

$$x = \sqrt[3]{0.5} \approx 0.79 \rightarrow (0.79, 0)$$

$y = 0 : x = 0 : y$

(0.79, 0) :

$$x=0 \quad , \quad (4)$$



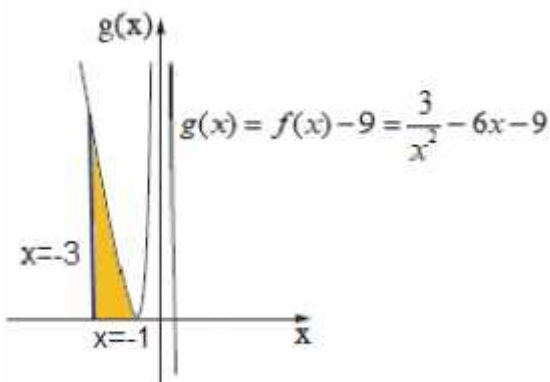
$$f(x) + c \quad , \quad g(x) = f(x) + c$$

$$(-1, 0) \quad , \quad x \quad g(x) = f(x) + c \quad (1)$$

$$c = -9 \quad , \quad 9$$

$$c = -9 :$$

$$g(x) = f(x) - 9 = \frac{3}{x^2} - 6x - 9 \quad , \quad (2)$$



$$S = \int_{-3}^{-1} \left(\frac{3}{x^2} - 6x - 9 - 0 \right) dx$$

$$S = \int_{-3}^{-1} (3x^{-2} - 6x - 9) dx$$

$$S = \left[\frac{3x^{-1}}{-1} - \frac{6x^2}{2} - 9x \right]_{-3}^{-1} = \left[-\frac{3}{x} - 3x^2 - 9x \right]_{-3}^{-1}$$

$$x = -1: 9$$

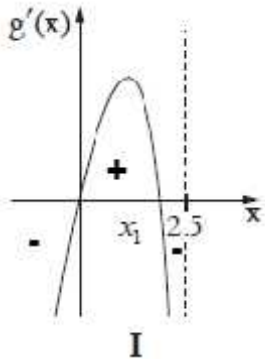
$$x = -3: 1$$

$$S = 9 - 1$$

$$\boxed{S = 8}$$

$$.8$$

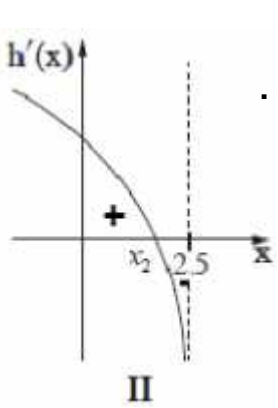
:



, $x < 2.5$
 $(x = 2.5$

	0		x_1		2.5	x
-		+		-		$g'(x)$
↘	Min	↗	Max	↘		

0 , x_1 , $g(x)$ -



, $x < 2.5$
 $(x = 2.5$

	x_2		2.5	x
+		-		$h'(x)$
↗	Max	↘		$h(x)$

x_2 , $h(x)$ -

$h(x)$ - , $g(x)$ - :

$$x \leq 2.5$$

$$f(x) = 3 + x^2 \cdot \sqrt{5 - 2x}$$

$$f(x)$$

$$(2.5, 3)$$

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

$$f'(x) = \frac{2x(5-2x) - x^2}{\sqrt{5-2x}}$$

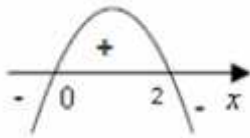
$$f'(x) = \frac{10x - 4x^2 - x^2}{\sqrt{5-2x}}$$

$$f'(x) = \frac{10x - 5x^2}{2\sqrt{5-2x}}$$

$$0 = 10x - 5x^2 \rightarrow 0 = 5x(2-x) \rightarrow x = 0, x = 2$$

$$f(2) = 3 + 2^2 \cdot \sqrt{5 - 2 \cdot 2} = 7 \rightarrow (2, 7)$$

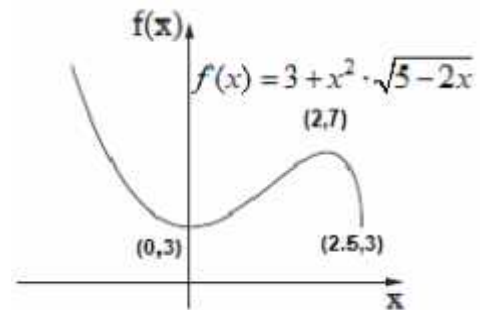
$$f(0) = 3 + 0^2 \cdot \sqrt{5 - 2 \cdot 0} = 3 \rightarrow (0, 3)$$



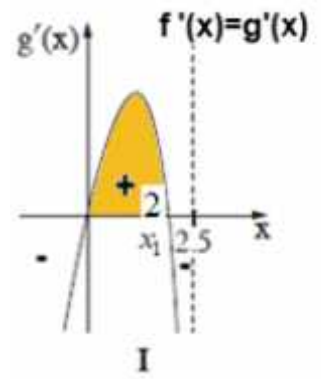
“ ”

	0		2		2.5	x
-		+		-		f'(x)
↘	Min	↗	Max	↘		

(0, 3), (2, 7), (2.5, 3) :



$$x_1 = 2, \quad I \quad f'(x) = g'(x)$$



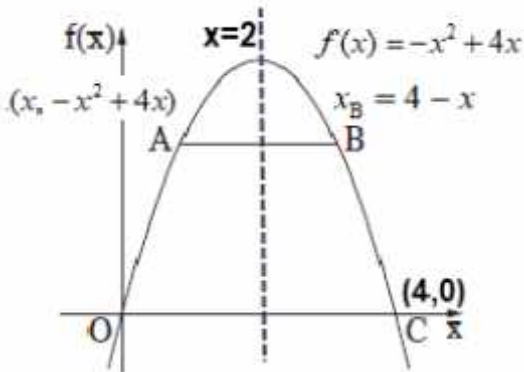
. I :

$$S = \int_0^2 (f'(x) - 0) dx$$

$$S = f(x) \Big|_0^2$$

$$\left. \begin{array}{l} x=2 \quad f(2)=7 \\ x=0 \quad f(0)=3 \end{array} \right\} S = 7 - 3 \rightarrow \boxed{S = 4}$$

. " 4 :



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

$$y = 0$$

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

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

$$x = 0, x = 4$$

$$O(0,0) - C(4,0)$$

$$C(4,0) :$$

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

$$x = 2$$

$$x_{\text{kodkod}} = -\frac{b}{2a} = -\frac{-4}{2} = 2$$

$$2 - x$$

$$A(x, -x^2 + 4x) \quad A$$

$$4 - x - 2 = 2 - x$$

$$B$$

$$x_B = 4 - x$$

$$x -$$

$$AB - ,$$

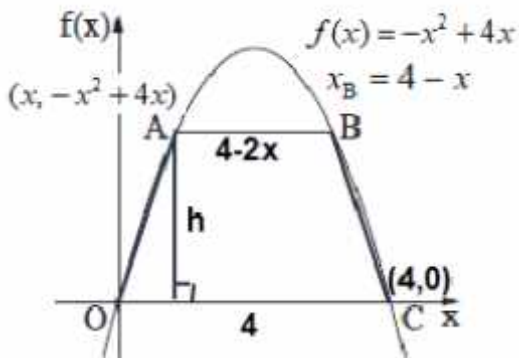
$$y -$$

$$x -$$

$$AB$$

$$:$$

.OABC **מקסימום שטח הטריפוז**



$$S_{OABC} = \frac{(OC + AB) \cdot h}{2}$$

$$S_{OABC} = \frac{[(4-0) + (4-x-x)] \cdot (-x^2 + 4x - 0)}{2}$$

$$S_{OABC} = \frac{(8-2x)(-x^2 + 4x)}{2} = \frac{8x^2 + 32x + 2x^3 - 8x^2}{2}$$

$$S_{OABC} = x^3 - 8x^2 + 16x$$

$$S' = 3x^2 - 16x + 16$$

$$0 = 3x^2 - 16x + 16$$

$$x_A = 1\frac{1}{3} \quad \cancel{x=4} \quad \leftarrow 0 < x_A < 2$$

$$S'(1) = 3 > 0, S'(2) = -4 < 0 \rightarrow \text{Max}$$

$$OABC$$

$$x_A = 1\frac{1}{3} :$$