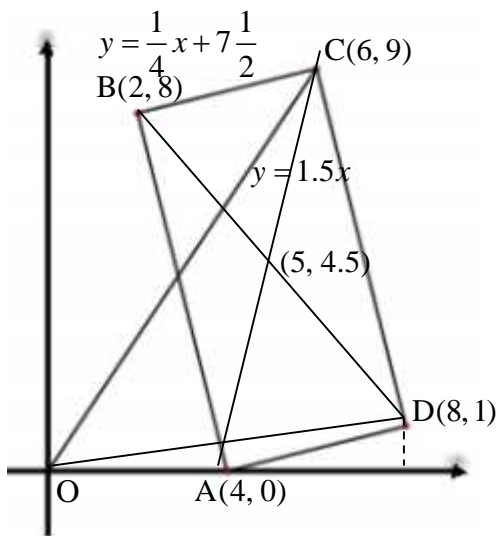


$$\begin{aligned}
 & \cdot R \quad \text{II} \qquad \qquad \qquad r \quad \text{I} \qquad \cdot \\
 & \cdot \left(\frac{100+30}{100} = 1.3 \right) R = 1.3r \quad , r = 30\% \cdot R \\
 & \qquad \qquad \qquad \cdot f R^2 \\
 & \qquad \qquad \qquad \qquad \qquad \cdot f r^2 \quad \text{I} \\
 & \qquad \qquad \qquad \cdot f (1.3)r^2 = 1.69f r^2 \quad \text{II} \\
 & \qquad \qquad \cdot 1.69 \quad \text{I} \quad \text{II} \\
 & \left(1.69 = \frac{100+P}{100} \right) 69\% \cdot \text{I} \qquad \qquad \text{II} \\
 & \qquad \qquad \cdot 69\% \cdot \text{I} \qquad \qquad \text{II} \qquad \qquad : \\
 & \cdot \text{I} \qquad \qquad 54.165 \cdot \quad \text{II} \qquad \qquad \cdot \\
 & \cdot 0.69S \cdot \qquad \qquad \text{II} \qquad \qquad \qquad S \cdot \text{I} \\
 & \qquad \qquad \cdot S = 78.5 \cdot \qquad \qquad 0.69S = 54.165 \\
 & \qquad \qquad \qquad \qquad \qquad \qquad 78.5 = f r^2 \\
 & \qquad \qquad \qquad \qquad \qquad \qquad 78.5 = 3.14r^2 \\
 & \qquad \qquad \qquad \qquad \qquad \qquad 25 = r^2 \\
 & \qquad \qquad \qquad \qquad \qquad \qquad r = 5cm \quad (r > 0) \\
 & \qquad \qquad \cdot " 5 \quad r \qquad \qquad \qquad :
 \end{aligned}$$



, $y = \frac{1}{4}x + 7\frac{1}{2}$: BC $y = 8$.

. B(2, 8) $x_B = 2$ $, 8 = \frac{1}{4}x + 7\frac{1}{2}$

: BC $y = 1.5x$ $. y = 1.5x$ OC

. C(6, 9) $x_C = 6$ $, 1.5x = \frac{1}{4}x + 7\frac{1}{2}$

. C(6, 9) , B(2, 8) :

(1) .

. , $m_{BA} = -4$ $, m_{BC} = \frac{1}{4}$

. $y = -4x + 16$ $y - 8 = -4(x - 2)$: AB

. A(4, 0) $x_A = 4$ $y_A = 0$

. A(4, 0) :

(2)

$(\frac{4+6}{2}, \frac{0+9}{2}) \rightarrow (5, 4.5)$

. (5, 4.5) :

. D

$$\left. \begin{aligned} 5 &= \frac{2+x_D}{2} \\ 4.5 &= \frac{8+x_D}{2} \end{aligned} \right\} D(8, 1)$$

. $4 - 0 = 4$ $, x -$ AO

. $y_D - 0 = 1 - 0 = 1$

$S_{\Delta OAD} = \frac{AO \cdot h_{AO}}{2} = \frac{4 \cdot 1}{2} = 2$

. " 2 ΔOAB

		- C	- B	- A
			- \bar{D}	- D
		B	A	
400	100	200	100	- D
400	50	150	200	- \bar{D}
800	150	350	300	

,(N(S) = 800)

$$P(B) = \frac{N(B)}{N(S)} = \frac{350}{800} = \frac{7}{16}$$

$$\frac{7}{16}$$

$$P(\bar{D} / A) = \frac{N(\bar{D} \cap A)}{N(A)} = \frac{200}{300} = \frac{2}{3}$$

(1)

$$P(C / \bar{A}) = \frac{N(C \cap \bar{A})}{N(\bar{A})} = \frac{150}{500} = 0.3$$

$$0.3$$

(2)

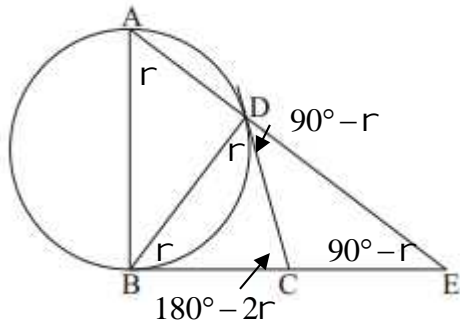
$$0.3 \quad (1)$$

$$0.7^5$$

$$1 - 0.7^5 = 0.8319$$

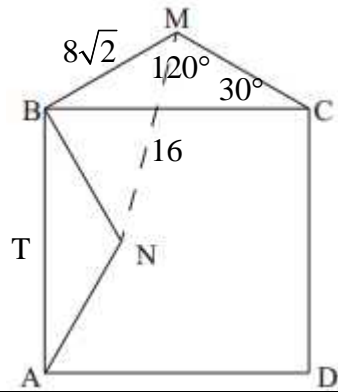
$$0.8319$$

"



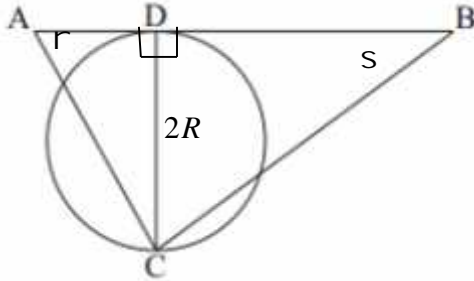
$\triangle BDE$ - AB .3 D- CD .2 B - BC .1
 $DC \cdot BD^2 = AD \cdot DE$ $\angle DCB = 2 \cdot \angle E$. : "

	B - BC	4	1
	D- CD	5	2
	CD = CB	6	5,4
$\triangle BDC$ -	$\angle CDB = \angle CBD = r$	7	6
	$\angle A = \angle CBD = r$	8	7,4
	AB	9	3
	$\angle ABE = 90^\circ$	10	9
$\triangle ABE$ 180°	$\angle E = 90^\circ - r$	11	10,8
$\triangle BDC$ 180°	$\angle DCB = 180^\circ - 2r$	12	7
	$\angle DCB = 2 \cdot \angle E$	13	12,11
. . .			
	$\angle BDA = 90^\circ$	14	9
($\triangle ABD \sim \triangle BED$ -)	$BD^2 = AD \cdot DE$	15	14,10
. . .			
180° -	$\angle EDC = 90^\circ - r$	16	14,7
	$\angle EDC = \angle E$	17	16,11
$\triangle DEC$ -	CD = CE	18	17
	CD = CE = CB	19	18,6
BE	$\triangle BDE$ - DC	20	19
. . .			



(MC = MB) - ΔMBC .1
 ABCD .2
 () $\Delta NBA \cong \Delta MBC$.3
 $\sphericalangle BMC = 120^\circ$.5 MN = " 16 .4 :
 . $\sphericalangle BMN = \sphericalangle BNM$ $\sphericalangle MBN = 90^\circ$. : "

	$\Delta NBA \cong \Delta MBC$	6	3
	$\sphericalangle MBC = \sphericalangle NBA$	7	6
	ABCD	8	2
	$\sphericalangle ABC = 90^\circ$	9	8
	$\sphericalangle NBC = 90^\circ - \sphericalangle NBA$	10	9
	$\sphericalangle MBN = 90^\circ - \sphericalangle NBA + \sphericalangle MBC$	11	10
	$\sphericalangle MBN = 90^\circ$	12	11,7
. . .			
	NB = MB	13	6
ΔMBN	$\sphericalangle BMN = \sphericalangle BNM$	14	13
. . .			
	MN = " 16	15	4
ΔMBN -	$BM = " \frac{16}{\sqrt{2}} = 8\sqrt{2}$	16	15,13,12
	$\sphericalangle BMC = 120^\circ$	17	5
	ΔMBC	18	1
ΔMBC	$\sphericalangle MCB = 30^\circ$	19	18,17
	180°		
	ΔBMC		
($30^\circ, 60^\circ, 90^\circ$)	BC	20	19,17,16
	$\frac{BC}{\sin 120^\circ} = \frac{BM}{\sin 30^\circ}$		
	$BC = \frac{8\sqrt{2} \sin 120^\circ}{\sin 30^\circ}$		
	$BC = 8\sqrt{6} \text{ cm}$		
. . .			



.() $\sphericalangle ABC = s$, $\sphericalangle BAC = r$.

ΔADC , ΔBDC

$$\operatorname{tg} r = \frac{DC}{AD}$$

$$\boxed{DB = \frac{2R}{\operatorname{tg} r}}$$

$$\operatorname{tg} s = \frac{DC}{DB}$$

$$\boxed{DB = \frac{2R}{\operatorname{tg} s}}$$

$$AB = AD + BD$$

$$AB = \frac{2R \operatorname{tg} s + 2R \operatorname{tg} r}{\operatorname{tg} r \operatorname{tg} s}$$

$$\boxed{AB = \frac{2R(\operatorname{tg} s + \operatorname{tg} r)}{\operatorname{tg} r \operatorname{tg} s}}$$

$$. AB = \frac{2R(\operatorname{tg} s + \operatorname{tg} r)}{\operatorname{tg} r \operatorname{tg} s} :$$

$$. 4R^2 \quad \Delta ABC \quad r = s \quad .$$

$$AB = \frac{2R(\operatorname{tg} r + \operatorname{tg} r)}{\operatorname{tg} r \operatorname{tg} r} = \frac{2R \cdot 2 \operatorname{tg} r}{\operatorname{tg}^2 r} = \frac{4R}{\operatorname{tg} r}$$

$$S_{\Delta ABC} = 4R^2$$

$$4R^2 = \frac{AB \cdot DC}{2}$$

$$8R^2 = AB \cdot DC$$

$$8R^2 = \frac{4R}{\operatorname{tg} r} \cdot 2R$$

$$8R^2 = \frac{8R^2}{\operatorname{tg} r} \quad /: 4R^2 > 0$$

$$1 = \frac{1}{\operatorname{tg} r}$$

$$\operatorname{tg} r = 1$$

$$r = 45^\circ$$

$$\sphericalangle ACB = 180^\circ - 2 \cdot 45^\circ$$

$$\boxed{\sphericalangle ACB = 90^\circ}$$

ΔABC

AB DC

$$S_{\Delta ABC} = 4R^2$$

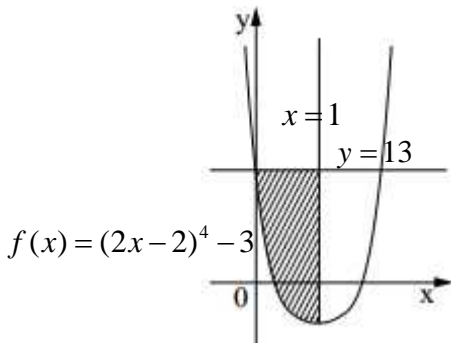
$$4R^2 = \frac{AB \cdot DC}{2}$$

$$8R^2 = 2R \cdot DC \quad /: 2R$$

$$\boxed{DC = 4R}$$

$$\boxed{\sphericalangle ACB = 90^\circ}$$

$$. \sphericalangle ACB = 90^\circ :$$



$$f(x) = (2x-2)^4 - 3$$

x

:

x

$$f'(x) = 4(2x-2)^3 \cdot 2$$

$$f'(x) = 8(2x-2)^3$$

$$0 = 2x - 2$$

$$x = 1$$

$$\left. \begin{aligned} f'(0) &= 8(2 \cdot 0 - 2)^3 < 0 \\ f'(2) &= 8(2 \cdot 2 - 2)^3 > 0 \end{aligned} \right\} \text{Min}$$

$$x = 1$$

()

$$x = 0$$

y

$$f(0) = (2 \cdot 0 - 2)^4 - 3 = 13$$

$$y = 13$$

x

$$y = 13, x = 1$$

$$13 - ((2x-2)^4 - 3) = 13 - (2x-2)^4 + 3 = 16 - (2x-2)^4$$

$$S = \int_0^1 (16 - (2x-2)^4) dx$$

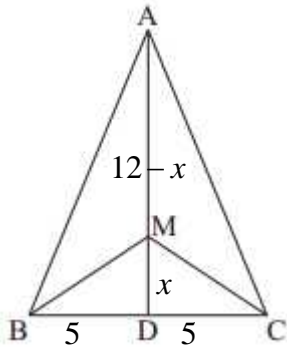
$$S = \left(16x - \frac{(2x-2)^5}{2 \cdot 5} \right) \Big|_0^1$$

$$\left. \begin{aligned} x=1 & \quad 16 \cdot 1 - \frac{(2 \cdot 1 - 2)^5}{10} = 16 \\ x=0 & \quad 16 \cdot 0 - \frac{(2 \cdot 0 - 2)^5}{10} = 3.2 \end{aligned} \right\} S = 16 - 3.2$$

$$S = 12.8$$

$$12.8$$

:



. AM+MB+MC **הקטע** **סכום** **הקטעים** **מקסימום** .

, AD = " 12

. ABC

. MB = MC

$\triangle CDM \cong \triangle BDM$

. DC = DB = " 5 , BC = " 10

. AM = 12 - x MD = x

MC = $\sqrt{x^2 + 25}$: $\triangle CDM$ -

. MB = $\sqrt{x^2 + 25}$

$f(x) = 12 - x + 2\sqrt{x^2 + 25}$:

$f'(x) = -1 + \frac{2 \cdot 2x}{2\sqrt{x^2 + 25}}$

$f'(x) = \frac{-\sqrt{x^2 + 25} + 2x}{\sqrt{x^2 + 25}}$

$-\sqrt{x^2 + 25} + 2x = 0$

$2x = \sqrt{x^2 + 25} \rightarrow (2x)^2 = x^2 + 25$

$4x^2 = x^2 + 25 \rightarrow$

$3x^2 = 25$

$x = \frac{5}{\sqrt{3}}$ ($x > 0$) test : $-\sqrt{\left(\frac{5}{\sqrt{3}}\right)^2 + 25} + 2 \cdot \frac{5}{\sqrt{3}} = 0 \rightarrow 0 = 0$ o.k.

$f'(2) = \frac{-\sqrt{2^2 + 25} + 2 \cdot 2}{+} = -1.38 < 0$
 $f'(3) = \frac{-\sqrt{3^2 + 25} + 2 \cdot 3}{+} = 0.17 > 0$ } Min

. AM+MB+MC

, $x = \frac{5}{\sqrt{3}}$:

. $\triangle BMC$ -

MD

, $x = \frac{5}{\sqrt{3}}$.

$\triangle MDC$

$tg \angle DMC = \frac{DC}{DM} = \frac{5}{5/\sqrt{3}} = \sqrt{3} \rightarrow \angle DMC = 60^\circ$

$\angle BMC = 120^\circ$

$\angle BMC = 120^\circ$:

"

$$x \neq 0 \quad \boxed{f'(x) = x - \frac{16}{x^3}} :$$

$$f(x) \qquad \qquad \qquad x - \qquad \qquad \qquad (1)$$

$$0 = x - \frac{16}{x^3}$$

$$0 = x^4 - 16$$

$$16 = x^4$$

$$x = \pm 2$$

$$f''(x) = 1 - \frac{16 \cdot 3x^2}{x^6} = 1 - \frac{48}{x^4}$$

$$f''(2) = f''(-2) = 1 - \frac{48}{16} > 0 \rightarrow \text{Min}$$

$$x = \pm 2:$$

$$f(2) = 4, 4 \quad f(x) \qquad \qquad \qquad y - \qquad \qquad \qquad (2)$$

$$f(x) = \int \left(x - \frac{16}{x^3}\right) dx$$

$$f(x) = \int (x - 16x^{-3}) dx$$

$$f(x) = \frac{x^2}{2} - \frac{16x^{-2}}{-2} + c = \frac{x^2}{2} + \frac{8}{x^2} + c$$

$$4 = \frac{2^2}{2} + \frac{8}{2^2} + c \rightarrow c = 0$$

$$\boxed{f(x) = \frac{x^2}{2} + \frac{8}{x^2}}$$

$$f(x) = \frac{x^2}{2} + \frac{8}{x^2} :$$

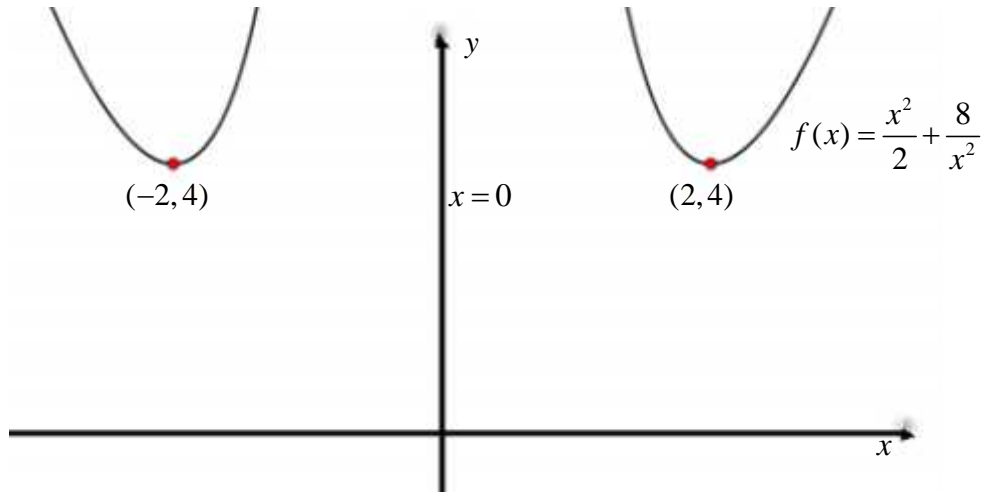
$x=0$

$x=0$ **(1)**

$x=0$:

$x=0$

$(-2,4) - (2,4)$



$f'(x) = x - \frac{16}{x^3}$ **(2)**

$x=0$

:

$-2 < x < 0$ $x > 2$, $f(x)$ $f'(x) > 0$

$x < -2$ $0 < x < 2$, $f(x)$ $f'(x) < 0$

