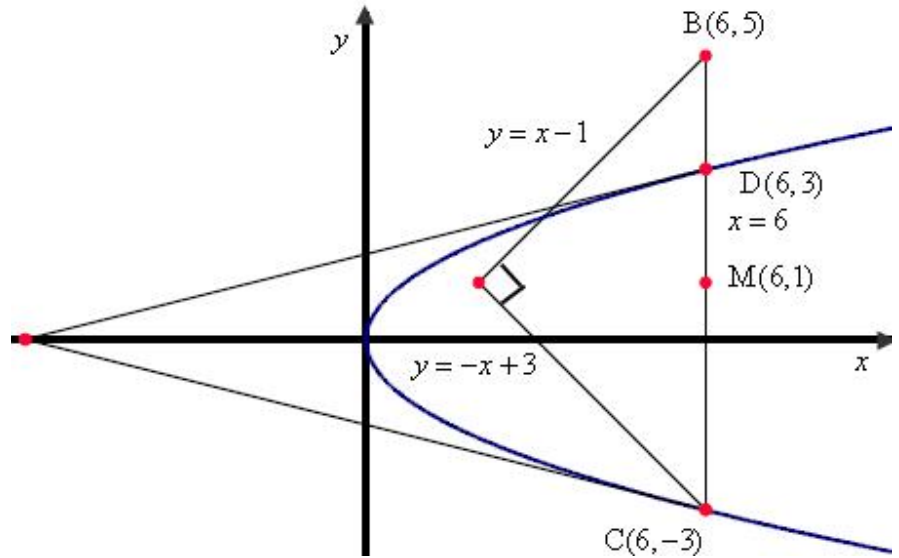


35007

12

$y = -x + 3$ AC $y = x - 1$ AB
 $\angle A = 90^\circ$, $m_{AB} = 1, m_{AC} = -1$
 : , BC :



$\frac{BD}{DC} = \frac{1}{3}$: BC D(6,3)

$y = x - 1$, AB

$B(x, x - 1)$

$$\begin{cases} 6 = \frac{3x + x_C}{4} \rightarrow x_C = 24 - 3x \\ 3 = \frac{3(x - 1) + y_C}{4} \rightarrow y_C = 15 - 3x \end{cases}$$

$y = -x + 3$ AC

$C(24 - 3x, 15 - 3x)$

$15 - 3x = -(24 - 3x) + 3 \rightarrow -6x = -36 \rightarrow x = 6$

$x_B = x_D = 6$, $x = 6$

$C(6, -3)$, $B(6, 5)$

$R = 5 - 1 = 4$, $\left. \begin{matrix} x_M = 6 \\ y_M = \frac{5 + (-3)}{2} = 1 \end{matrix} \right\} M(6, 1)$:

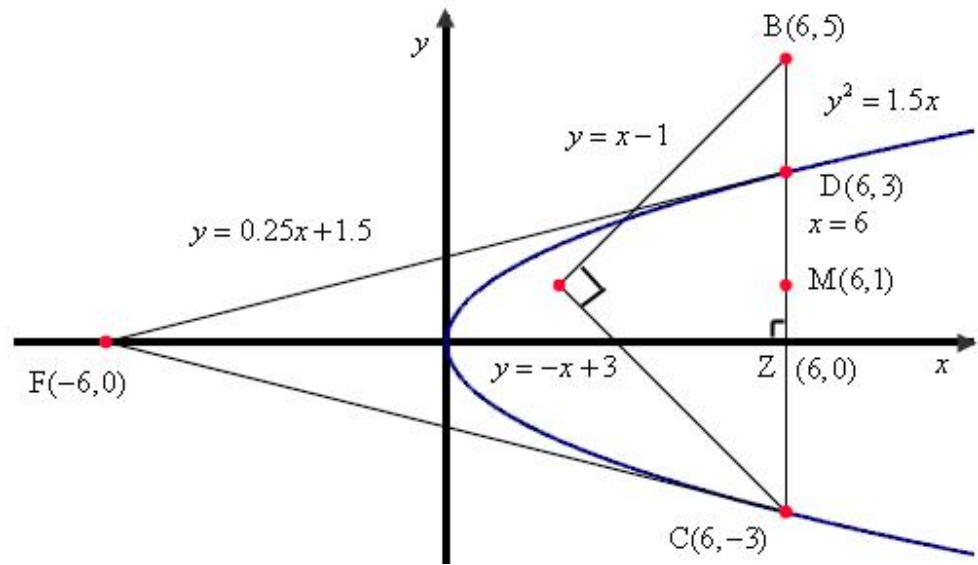
$(x - 6)^2 + (y - 1)^2 = 16$ ΔABC :

..

$$y^2 = 2px$$

$$D(6,3)$$

$$y^2 = 1.5x \leftarrow p = 0.75 \leftarrow 3^2 = 2p \cdot 6 :$$



$$FD = FC \quad , C(6, -3) -$$

$$, D(6, 3) -$$

$$(DF)$$

$$, x -$$

$$CD : x = 6$$

$$, x -$$

$$. x -$$

$$FC$$

$$. yy_0 = p(x + x_0) :$$

$$. y = 0.25x + 1.5 \leftarrow 3y = 0.75(x + 6) \quad p = 0.75, D(6, 3)$$

$$. x -$$

$$, F(-6, 0) \quad y = 0$$

$$S_{\Delta FDC} = \frac{DC \cdot ZF}{2} = \frac{(3 - (-3)) \cdot (6 - (-6))}{2} = \frac{6 \cdot 12}{2} = 36$$

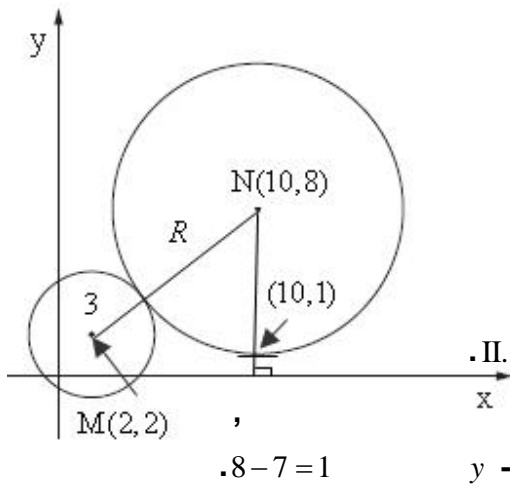
$$. " \quad 36$$

:

"

35007

12



(MN)

I. $(x-2)^2 + (y-2)^2 = 9$ $M(2,2), R_I = 3$

II. $(x-10)^2 + (y-8)^2 = R^2$ $N(10,8), R = ?$

$\cdot (3+R)$

$R+3 = \sqrt{(10-2)^2 + (8-2)^2} \rightarrow R+3=10 \rightarrow R=7$

II. $(x-10)^2 + (y-8)^2 = 49$ $N(10,8), R=7$

$x, x=10$

$y -$

$\cdot x -$

$, x -$

$\cdot (10,1) :$

,I

,NA

,A

,NA

.7:3

(1)

$$\begin{cases} x_B = \frac{7 \cdot 2 + 3 \cdot 10}{10} = 4.4 \\ y_B = \frac{7 \cdot 2 + 3 \cdot 8}{10} = 3.8 \end{cases}$$

$\cdot (4.4, 3.8)$

:

A

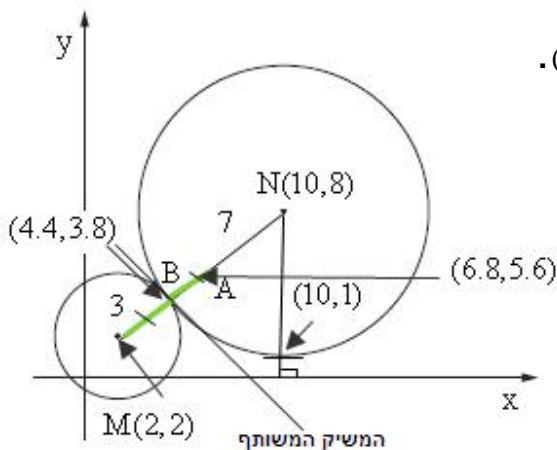
(2)

$$\begin{cases} 4.4 = \frac{2 + x_A}{2} \rightarrow x_A = 6.8 \\ 3.8 = \frac{2 + y_A}{2} \rightarrow y_A = 5.6 \end{cases}$$

$\cdot (6.8, 5.6)$

A

:



, $(\underline{n}:(a,b,c), \quad)$, ,

$$f_1: ax+by+cz+d_1=0, \quad f_2: ax+by+cz+d_2=0 :$$

$$A(2, 0, 3) \quad f_1: 2a+3c+d_1=0 \rightarrow 2a+3c-6c=0 \rightarrow a=1.5c$$

$$B(0, 0, 6) \quad f_1: 6c+d_1=0 \rightarrow d_1=-6c \uparrow$$

$$C(-2, 0, 2) \quad f_2: -2a+2c+d_2=0 \rightarrow -3c+2c+d_2=0 \rightarrow d_2=c$$

$$f_1: 1.5cx+by+cz-6c=0$$

$$f_2: 1.5cx+by+cz+c=0$$

: ,2

$$2 = \frac{|-6c-c|}{\sqrt{(1.5c)^2+b^2+c^2}}$$

$$2 = \frac{|-7c|}{\sqrt{3.25c^2+b^2}}$$

$$13c^2+4b^2=49c^2 \rightarrow b=\pm 3c$$

· , , :

$$b=3c \rightarrow c=2, \quad b=6, \quad a=3, \quad d_1=-12, \quad d_2=2$$

$$f_1=3x+6y+2z-12=0, \quad f_2=3x+6y+2z+2=0$$

:

$$b=-3c \rightarrow c=2, \quad b=-6, \quad a=3, \quad d_1=-12, \quad d_2=2$$

$$f_1=3x-6y+2z-12=0, \quad f_2=3x-6y+2z+2=0$$

$$f_1=3x+6y+2z-12=0, \quad f_2=3x+6y+2z+2=0 :$$

$$f_1=3x-6y+2z-12=0, \quad f_2=3x-6y+2z+2=0 :$$

35007

12

$$z = -\frac{1}{2} + \frac{\sqrt{3}}{2}i$$

$$z^3 = w$$

:

$$\tan \theta = \frac{\frac{\sqrt{3}}{2}}{-\frac{1}{2}} = -\sqrt{3}$$

$$\theta = -60^\circ + 180^\circ k$$

$$\theta = 120^\circ \leftarrow 2nd \text{ quadrant}$$

$$R = \sqrt{\left(\frac{\sqrt{3}}{2}\right)^2 + \left(-\frac{1}{2}\right)^2} = 1$$

$$z = cis 120^\circ$$

$$w = z^3 = 1^3 cis(120^\circ \cdot 3) = cis 360^\circ$$

:

,

$$z_k = cis\left(\frac{360^\circ}{3} + \frac{360^\circ K}{3}\right)$$

$$k = 0: z_0 = cis 120^\circ$$

$$k = 1: z_1 = cis 240^\circ$$

$$k = 2: z_2 = cis 360^\circ$$

$$(cis \theta)^n = w$$

,

$$(120^\circ k) \frac{360^\circ k}{n}$$

:

$$z_0 \cdot z_1 = cis 120^\circ \cdot cis 240^\circ = cis 360^\circ = z_2$$

$$z_0 \cdot z_2 = cis 120^\circ \cdot cis 360^\circ = cis 480^\circ = cis 120^\circ = z_0$$

$$z_1 \cdot z_2 = cis 240^\circ \cdot cis 360^\circ = cis 600^\circ = cis 240^\circ = z_1$$

. :

"

35007

12

$$f(x) = \ln(x + \sqrt{1+x^2})$$

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

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

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

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

Area under the curve from $x = -1$ to $x = 1$.

$$S = \int_{-1}^1 (f'(x) - 0) dx$$

$$S = f(x) \Big|_{-1}^1$$

$$S = (\ln(1 + \sqrt{1+1^2}) - \ln(-1 + \sqrt{1+(-1)^2}))$$

$$S = (\ln(1 + \sqrt{2}) - \ln(-1 + \sqrt{2}))$$

$$S = \ln\left(\frac{\sqrt{2}+1}{\sqrt{2}-1}\right) = \ln\left[\frac{(\sqrt{2}+1)(\sqrt{2}+1)}{(\sqrt{2}-1)(\sqrt{2}+1)}\right] = \ln\frac{3+2\sqrt{2}}{2-1}$$

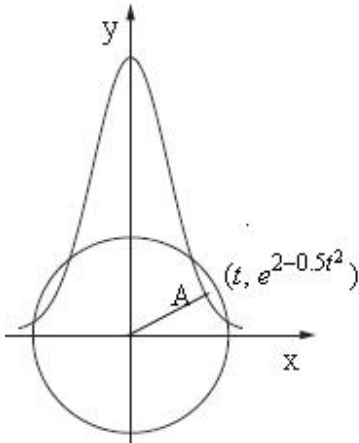
$$S = \ln(3+2\sqrt{2}) = 1.763$$

∴ $\ln(3+2\sqrt{2}) = 1.763$

$$f(x) = e^{2-0.5x^2}$$

$$A(t, e^{2-0.5t^2})$$

רדיוס המצף הקנוני, **למינימום**



$$R = \sqrt{(t-0)^2 + (e^{2-0.5t^2} - 0)^2}$$

$$R = \sqrt{t^2 + e^{4-t^2}}$$

$$R' = \frac{2t - 2te^{4-t^2}}{2\sqrt{t^2 + e^{4-t^2}}}$$

$$0 = \frac{2t - 2te^{4-t^2}}{2\sqrt{t^2 + e^{4-t^2}}}$$

$$0 = 2t - 2te^{4-t^2}$$

$$0 = 2t(1 - e^{4-t^2})$$

$$t = 0 \quad t = \pm 2$$

$$R(3) = \sqrt{3^2 + e^{4-3^2}} = 3.001$$

$$R(2) = \sqrt{2^2 + e^{4-2^2}} = \sqrt{5}$$

$$R(0) = \sqrt{0^2 + e^{4-0^2}} = e^2$$

$$t = 2 \text{ Min}$$

$$t = 0$$

$$t = -2$$

$$\sqrt{5}$$

$$(x = -2 \quad x = 2)$$

