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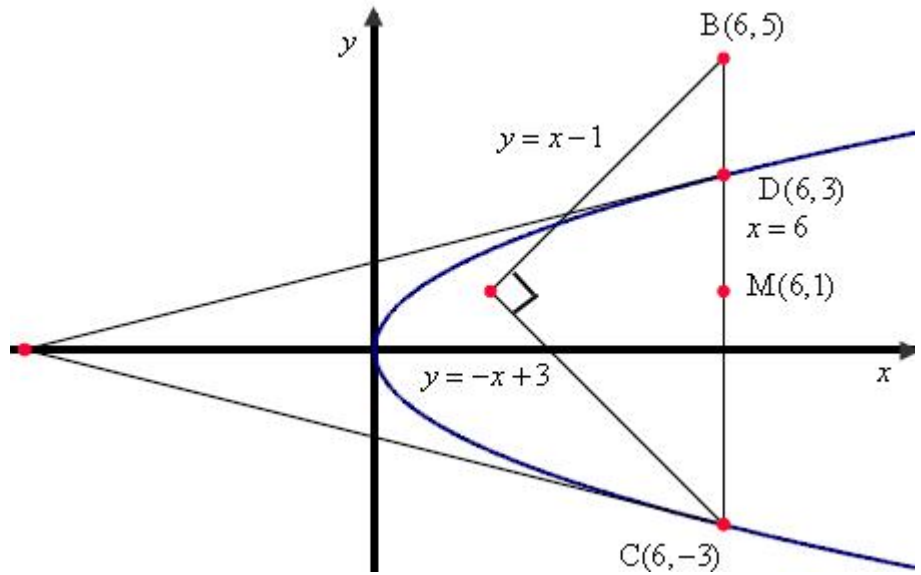
$y = -x + 3$  AC

$y = x - 1$  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

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

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

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

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

$R = 5 - 1 = 4$

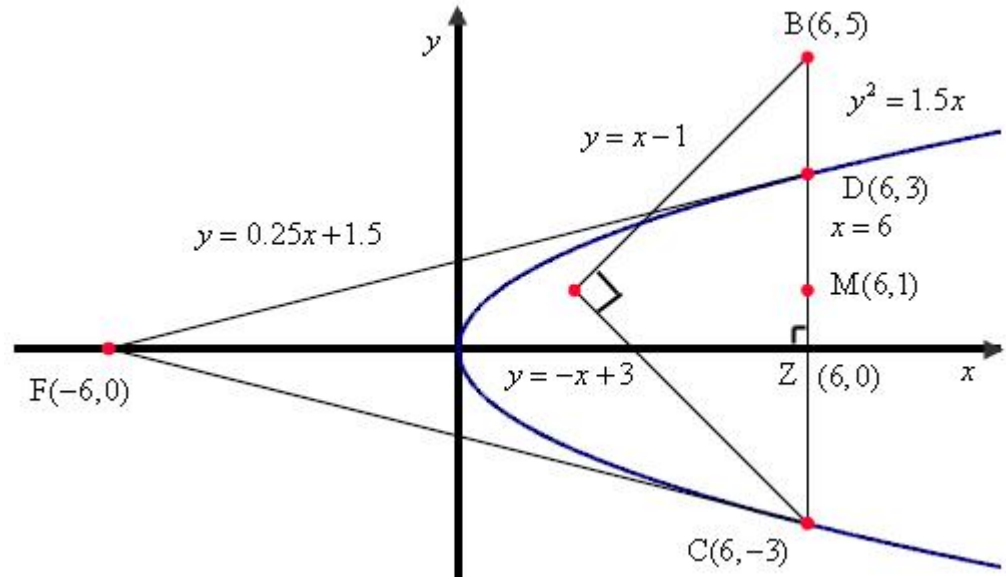
$\left\{ \begin{matrix} x_M = 6 \\ y_M = \frac{5 + (-3)}{2} = 1 \end{matrix} \right\} M(6, 1)$  :

$(x - 6)^2 + (y - 1)^2 = 16$   $\Delta ABC$  :

$$y^2 = 2px$$

D(6,3)

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



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

, D(6,3)

(DF)

, x -

$$CD : x = 6$$

, x -

. x -

FC

$$y y_0 = p(x + x_0) :$$

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

. x -

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

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

. " 36

:

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

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

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

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

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

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

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

:

,2

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

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

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

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

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

:

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

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

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

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

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

$$z^3 = w$$

:

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

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

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

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

$$z = \text{cis } 120^\circ$$

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

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

$$k = 0: z_0 = \text{cis } 120^\circ$$

$$k = 1: z_1 = \text{cis } 240^\circ$$

$$k = 2: z_2 = \text{cis } 360^\circ$$

$$(\text{cis } \theta)^n = w$$

,

$$\left( \text{cis } 120^\circ k \right)^{\frac{360^\circ k}{n}}$$

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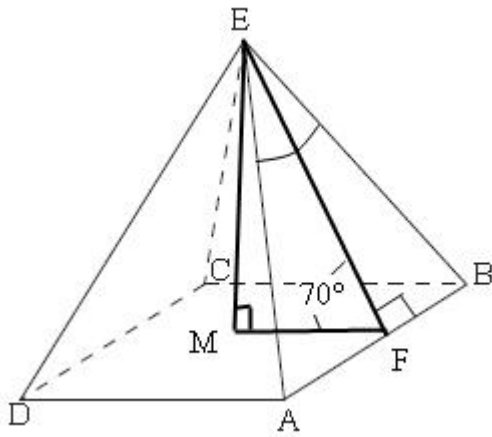
$$z_0 \cdot z_1 = \text{cis } 120^\circ \cdot \text{cis } 240^\circ = \text{cis } 360^\circ = z_2$$

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

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

. :

(1)



ABCD

( $\Delta SAB$ )

(AB

)

( )

EF

,  $\Delta DAB$  -

MF

. AB -

AD

.  $\angle EFM = 70^\circ$

.  $MF = 0.5x$  ,

x -

$\Delta EMF$

$$\cos \angle EFM = \frac{MF}{EF}$$

$$\cos 70^\circ = \frac{MF}{EF}$$

$$EF = \frac{0.5x}{\cos 70^\circ}$$

$$\boxed{EF = 1.4619x}$$

$\Delta EBF$

$$\tan \angle BEF = \frac{BF}{EF}$$

$$\tan \angle BEF = \frac{0.5x}{1.4619x}$$

$$\angle BEF = 18.88^\circ$$

$$\boxed{\angle BEA = 37.76^\circ}$$

.  $37.76^\circ$

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. " 11

(2)

$\triangle EMF$

$$\tan \sphericalangle EFM = \frac{EM}{MF}$$

$$\tan 70^\circ = \frac{EM}{0.5x}$$

$$\boxed{EM = 1.3737x}$$

$$11 = \frac{x^2 \cdot 1.3737x}{3} \rightarrow 33 = 1.3737x^3 \rightarrow 24.022 = 1.3737x^3 \rightarrow x = 2.885$$

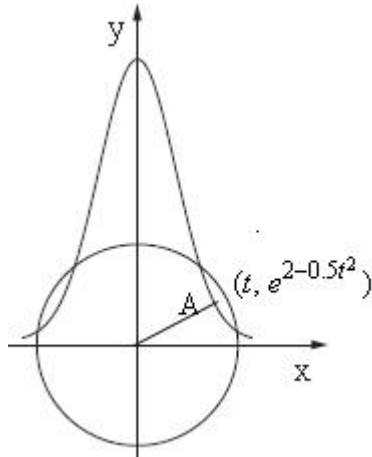
. " 2.885

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

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

פאינימום רדיוס האצף הקנוני ,



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

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

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

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

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

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

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

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

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

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

$t = 2$  Min

,  $t = 0$  ,  $t = -2$  ,  
 ,  $(x = -2 \quad x = 2)$  ,

. $\sqrt{5}$  :

$$f(x) = -\frac{a}{(a^2 + 1)(ax + 1)}$$

$$F(a) = \int_0^a f(x) dx, \quad a \geq 0, \quad F(a)$$

$$F(a) = \int_0^a -\frac{a}{(a^2 + 1)(ax + 1)} dx$$

$$F(a) = -\frac{a}{(a^2 + 1)} \left[ \ln|ax + 1| \right]_0^a$$

$$F(a) = \left( -\frac{\ln|a^2 + 1|}{a^2 + 1} \right) - \left( -\frac{\ln|a \cdot 0 + 1|}{a^2 + 1} \right)$$

$$F(a) = -\frac{\ln(a^2 + 1)}{a^2 + 1} \quad \leftarrow a^2 + 1 > 0$$

$$F(a) = -\frac{\ln(a^2 + 1)}{(a^2 + 1)} :$$

$$a \geq 0, \quad (1)$$

$$F'(a) = -\frac{(a^2 + 1) \cdot 2a - 2a \ln(a^2 + 1)}{(a^2 + 1)^2} \rightarrow F'(a) = \frac{2a(1 - \ln(a^2 + 1))}{(a^2 + 1)^2}$$

$$0 = 2a(1 - \ln(a^2 + 1))$$

$a = 0$  end point

$$\ln(a^2 + 1) = 1 \rightarrow a^2 + 1 = e \rightarrow a = \sqrt{e - 1} \quad \leftarrow a \geq 0$$

$$F(0) = -\frac{\ln(0^2 + 1)}{0^2 + 1} = 0, \quad F(\sqrt{e - 1}) = -\frac{\ln(\sqrt{e - 1}^2 + 1)}{\sqrt{e - 1}^2 + 1} = -\frac{1}{e} = -0.368, \quad F(\sqrt{2e - 1}) = -0.311$$

$$x = \sqrt{2e - 1}$$

$$(\sqrt{e - 1}, -\frac{1}{e}), \text{Min}, (0, 0), \text{Max} :$$

$$a \geq 0, \quad (2)$$

$$1 - \ln(a^2 + 1) - (0, 0) :$$



