

$$\frac{x^2}{a^2} + \frac{y^2}{b^2} = 1$$

$$AF_2 \quad F_1(c,0)$$

$$\frac{a+(-c)}{2} = c \quad , F_2(-c,0), A(a,0) :$$

$$a = 3c$$

$$A(a,0), B(0,b) \quad ( \quad )$$

$$AB - \quad ,$$

$$a^2 + b^2 = 17$$

$$a^2 = b^2 + c^2$$

$$\begin{cases} a = 3c \rightarrow c^2 = \frac{a^2}{9} \\ a^2 + b^2 = 17 \rightarrow b^2 = 17 - a^2 \\ a^2 = b^2 + c^2 \end{cases}$$

$$a^2 = 17 - a^2 + \frac{a^2}{9} \rightarrow \frac{17}{9}a^2 = 17 \rightarrow a = 3 \leftarrow a > 0$$

$$a = 3 \rightarrow c = 1, b = \sqrt{8}$$

$$\frac{x^2}{9} + \frac{y^2}{8} = 1$$

$$(1.5, \sqrt{2}) \quad \left( \frac{0+3}{2}, \frac{\sqrt{8}+0}{2} \right)$$

$$, y - \quad x -$$

$$(1.5, -\sqrt{2}), (-1.5, -\sqrt{2}), (-1.5, \sqrt{2}) :$$

$$3 \cdot 2\sqrt{2} = 6\sqrt{2}$$

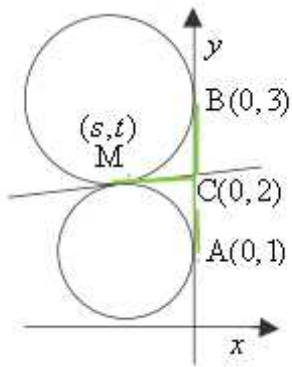
$$z = 0 \quad [x, y] \quad ,$$

$$4 \quad (0, 3, 4)$$

$$V = \frac{6\sqrt{2} \cdot 4}{3} = 8\sqrt{2} :$$

$$8\sqrt{2} \quad :$$

"



$CA = CM$  ,  $CB = CM$  " C  
 $MC = \frac{1}{2}AB$  ,  $CB = CM = CA$  "

$(0, 2)$  AB C (1)

$C(0, 2)$   $M(s, t)$

$1 - \frac{1}{2}AB -$

$\sqrt{(s-0)^2 + (t-2)^2} = 1$

$x^2 + (y-2)^2 = 1$

$x < 0$  ,  $M(s, t)$

$x < 0$  ,  $x^2 + (y-2)^2 = 1$

$(y - )$  : (2)

$x = -\frac{p}{2}$   $y^2 = 2px$

$p = 2 - \frac{p}{2} = -1$

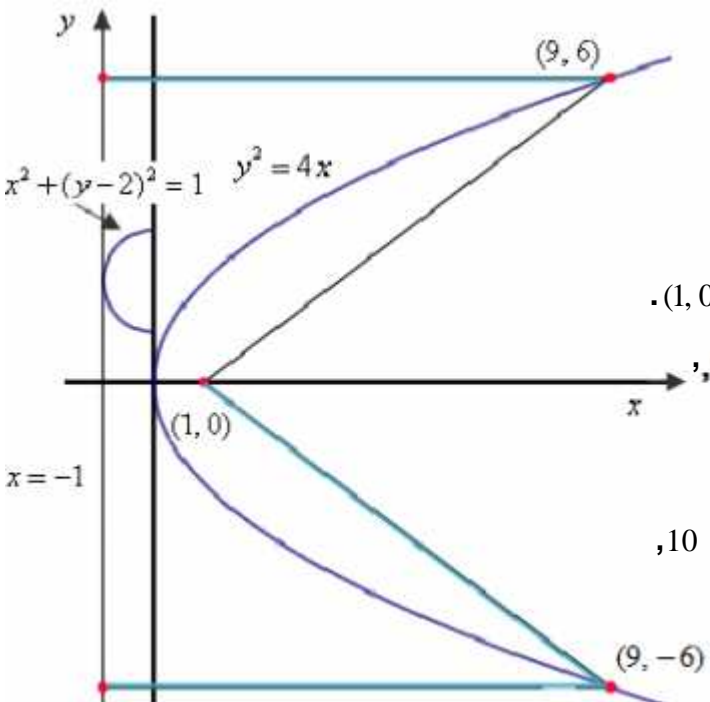
$(1, 0)$

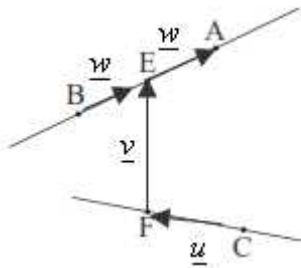
$y^2 = 4x$

$x = 9 - x - (-1) = 10$

$y = \pm 6$   $y^2 = 4x$   $x = 9$

$(9, -6) - (9, 6)$  :





$$\begin{aligned} \overline{CF} = \underline{u} \quad & |\underline{u}| = \sqrt{7} \quad u^2 = 7 \\ \overline{FE} = \underline{v} \quad & |\underline{v}| = \sqrt{13} \quad v^2 = 13 \\ \overline{EA} = \underline{w} \quad & |\underline{w}| = \sqrt{5} \quad w^2 = 5 \\ \underline{u} \cdot \underline{v} = \underline{v} \cdot \underline{w} = 0 \quad & \leftarrow \underline{u} \perp \underline{v}, \underline{v} \perp \underline{w} \\ \underline{u} \cdot \underline{w} = |\underline{u}| \cdot |\underline{w}| \cdot \cos \sphericalangle(\underline{u}, \underline{w}) \\ \underline{u} \cdot \underline{w} = \sqrt{7} \cdot \sqrt{5} \cdot \frac{\sqrt{35}}{10} \\ \underline{u} \cdot \underline{w} = 3.5 \end{aligned}$$

$$\cos \sphericalangle ABC = \frac{\overline{AB} \cdot \overline{CB}}{|\overline{AB}| |\overline{CB}|}$$

$$\overline{AB} = -2\underline{w}$$

$$\overline{CB} = \overline{CF} + \overline{FE} + \overline{EB}$$

$$\overline{CB} = \underline{u} + \underline{v} - \underline{w}$$

$$\overline{AB} \cdot \overline{CB} = -2\underline{w}(\underline{u} + \underline{v} - \underline{w})$$

$$\overline{AB} \cdot \overline{CB} = -2\underline{u}\underline{w} + 2\underline{w}^2 = -2 \cdot 3.5 + 2 \cdot 5 = 3 \quad \leftarrow \underline{u} \cdot \underline{v} = \underline{v} \cdot \underline{w} = 0$$

$$|\overline{AB}| = |-2\underline{w}| = 2\sqrt{5}$$

$$|\overline{CB}| = |\underline{u} + \underline{v} - \underline{w}| = \sqrt{u^2 + v^2 + w^2 - 2\underline{u}\underline{w}} = \sqrt{7 + 13 + 5 - 2 \cdot 3.5} = \sqrt{18}$$

$$\cos \sphericalangle ABC = \frac{3}{2\sqrt{5} \cdot \sqrt{18}}$$

$$\sphericalangle ABC = 80.9^\circ$$

$$\sphericalangle ABC = 80.9^\circ :$$

$$A(0, 2, 3), B(2, 6, 3) :$$

. AB

, f

AB

$$\overline{AB} = \underline{B} - \underline{A} = \underline{x} = (2, 4, 0)$$

$$B(2, 6, 3)$$

$$, 2x + 4y + d = 0$$

$$. x + 2y - 14 = 0$$

$$2x + 4y - 28 = 0 \quad - \quad d = -28 \quad -$$

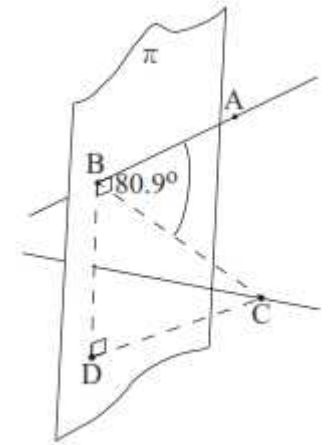
$$2 \cdot 2 + 4 \cdot 6 + d = 0$$

$$. x + 2y - 14 = 0$$

f

:

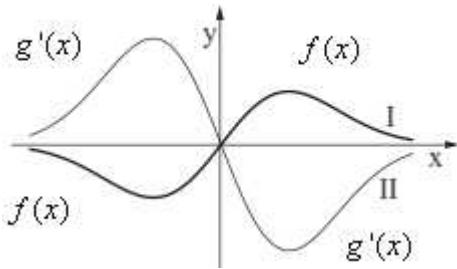
$\angle ABC = 80.9^\circ$   
 $90^\circ - 80.9^\circ = 9.1^\circ$   
 $\angle ABC = 80.9^\circ$   
 $90^\circ - 80.9^\circ = 9.1^\circ$



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$f(x)$   $(-2)$   $f(x)$   $g'(x)$  ,  $g'(x) = -2f(x)$  .  
 ,  $g(x) -$  II  $f(x) -$  I



$g'(x) -$  II  $f(x) -$  I :  
 $($   $) f(x)$

$g(0.5) = \frac{1}{e^{0.25}}$   $g'(x) = -2xe^{-x^2}$  .

$f(x) = -0.5g'(x) = -0.5 \cdot (-2xe^{-x^2})$

$f(x) = xe^{-x^2}$

$g(x) = \int g'(x) dx = \int (-2xe^{-x^2}) dx = \int (e^{-x^2} \cdot (-2x)) dx$

$(0.5, \frac{1}{e^{0.25}})$

$g(x) = e^{-x^2} + c$  :

$\frac{1}{e^{0.25}} = e^{-0.5^2} + c$

$e^{-0.25} = e^{-0.25} + c \rightarrow c = 0$

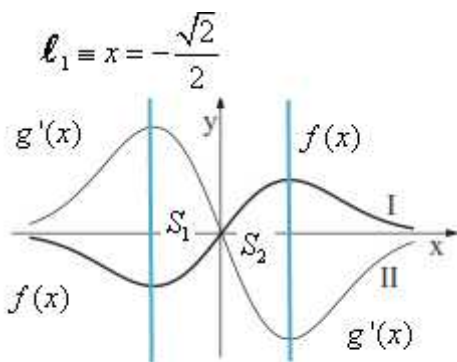
$g(x) = e^{-x^2}$

$f(x) > g(x)$   $x$

$xe^{-x^2} > e^{-x^2} \quad \because e^{-x^2} > 0$

$x > 1$

$x > 1$  :



$l_2 \equiv x = \frac{\sqrt{2}}{2}$

$x = \frac{\sqrt{2}}{2} \quad l_2$

$f(x)$

$x = -\frac{\sqrt{2}}{2} \quad l_1$

$l_1 \equiv x = -\frac{\sqrt{2}}{2}$  ,  $l_2 \equiv x = \frac{\sqrt{2}}{2}$  :

"

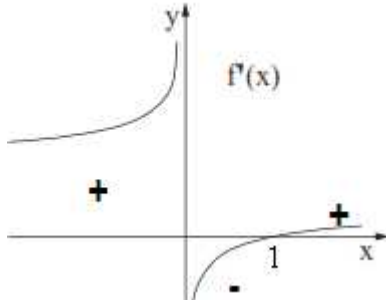
$$S_2 = S_1, \quad f(x), g'(x)$$

$$g'(-x) = -2f(-x) = -2(-f(x)) = 2f(x) = -g'(x) \quad f'(-x) = (-x)e^{-(-x)^2} = -xe^{-x^2} = -f(x)$$

$$y = x,$$

$$S_1 = S_2$$

$$\frac{S_1}{S_2} = 1$$



$$f'(x) = \frac{2 \cdot \sqrt[3]{x} - 2}{\sqrt[3]{x}}$$

$$x \quad f(x) \quad , \quad (1)$$

$$f'(x) = \frac{2 \cdot \sqrt[3]{x} - 2}{\sqrt[3]{x}} \quad |$$

$$0 = \frac{2 \cdot \sqrt[3]{x} - 2}{\sqrt[3]{x}}$$

$$0 = 2 \cdot \sqrt[3]{x} - 2$$

$$\sqrt[3]{x} = 1$$

$$x = 1$$

$$x < 0 \quad x > 1 \quad f'(x) > 0 \quad ,$$

$$0 < x < 1 \quad f'(x) < 0 \quad -$$

$$0 < x < 1 : \quad , \quad x < 0 \quad x > 1 : \quad :$$

$$, x < 0 \quad x > 0 \quad , \quad f'(x) \quad (2)$$

$$f''(x) \quad ,$$

$$( \cup ) \quad f(x)$$

$$x = 0$$

$$, x = 0$$

$$, " \quad " \quad ,$$

$$.(x \quad - \quad , x < 0 \quad x > 0 : \quad :$$

$$y = -1$$

$$x = 1$$

$$f'(x) = \frac{2 \cdot \sqrt[3]{x} - 2}{\sqrt[3]{x}} = 2 - \frac{2}{x^{1/3}} = 2 - 2x^{-1/3}$$

$$f(x) = \int f'(x) dx = \int (2 - 2x^{-1/3}) dx = 2x - \frac{2x^{2/3}}{2/3} + c$$

$$f(x) = 2x - 3x^{2/3} + c$$

$$(1, -1)$$

$$-1 = 2 \cdot 1 - 3 \cdot 1^{2/3} + c \rightarrow c = 0$$

$$\boxed{f(x) = 2x - 3\sqrt[3]{x^2}}$$

"

$f(x)$

$$f(0) = 2 \cdot 0 - 3 \cdot \sqrt[3]{0^2} = 0 \rightarrow \boxed{(0,0)}$$

$$0 = 2x - 3\sqrt[3]{x^2}$$

$$0 = x(2 - 3x^{-1/3})$$

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

$$2 = 3x^{-1/3}$$

$$x^{1/3} = 1.5$$

$$x = 3.375 \rightarrow \boxed{(3.375,0)}$$

$(3.375,0)$  ,  $(0,0)$  :

$f(x)$

III

$(x=1)$

,  $x$

, (2)

, (1)

" "

$x=0$

