

$$y^2 = 2px$$

$$A(1, 6)$$

:

$$6^2 = 2p \cdot 1$$

$$\boxed{p = 18}$$

$$y^2 = 36x$$

$$(12, -4)$$

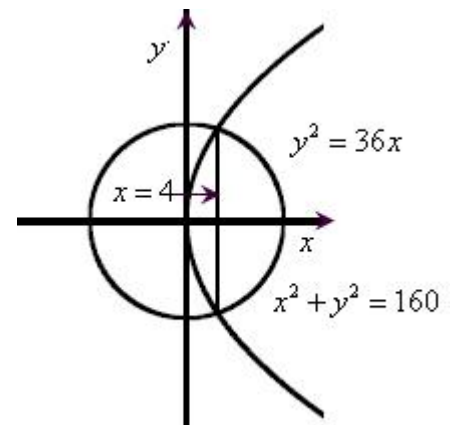
:

$$x^2 + y^2 = R^2$$

$$12^2 + (-4)^2 = R^2$$

$$\boxed{R^2 = 160}$$

$$x^2 + y^2 = 160$$



:

,

$$\begin{cases} x^2 + y^2 = 160 \\ y^2 = 36x \end{cases}$$

$$\Leftrightarrow x^2 = 160 - 36x$$

$$\Leftrightarrow x^2 + 36x - 160 = 0$$

$$\Leftrightarrow x_{1,2} = \frac{-36 \pm 44}{2}$$

$$\Leftrightarrow \boxed{x_1 = 4} \quad \cancel{x_2 = -40} \quad \leftarrow x > 0$$

, x -

$$x = 4$$

$$x = 4 :$$

$$y^2 = 36 \cdot 4$$

$$y^2 = 144$$

$$y = \pm 12$$

(4, 12), (4, -12) ,

$$(x-4)^2 + y^2 = 144 : \quad 12 \quad , (4, 0)$$

$$\begin{cases} x^2 + y^2 = 160 \\ (x-4)^2 + y^2 = 144 \end{cases}$$

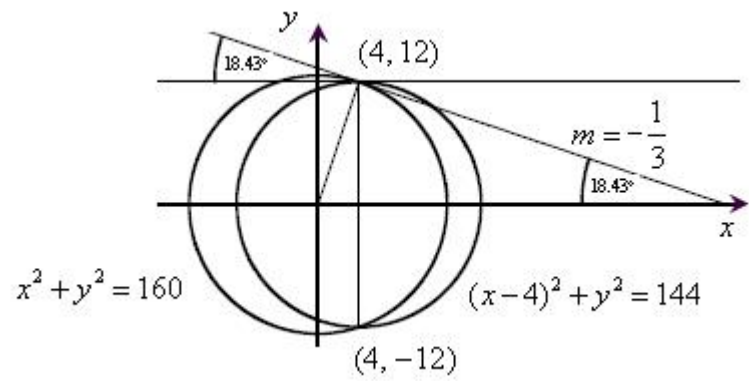
$$\Leftrightarrow 8x - 16 = 16$$

$$\Leftrightarrow 8x = 32$$

$$\Leftrightarrow \boxed{x = 4}$$

, (4, 12), (4, -12)

(4, 12)



, x -

x -

$$x = 4$$

$$, (x-4)^2 + y^2 = 144$$

. x -

: (4, 12)

$$x^2 + y^2 = 160$$

$$m = \frac{12-0}{4-0} = 3$$

$$. m = -\frac{1}{3} ,$$

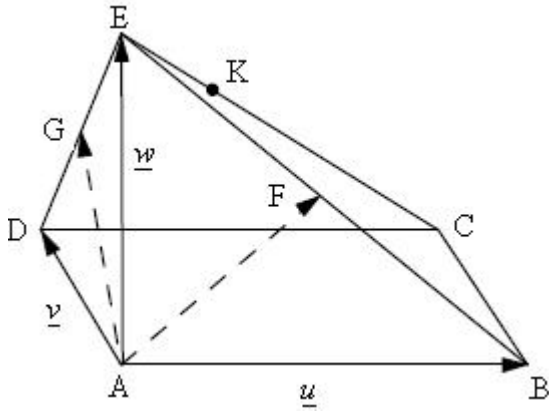
.() x -

.18.43° (

) x -

.18.43°

:



$\overline{EK} = t\overline{EC}$: ,CE K (1) .

$$\begin{aligned} \overline{AK} &= \overline{AE} + t\overline{EC} \\ \overline{AK} &= \overline{AE} + t(\overline{EA} + \overline{AB} + \overline{BC}) \\ \overline{AK} &= \underline{w} + t(-\underline{w} + \underline{u} + \underline{v}) \\ \boxed{\overline{AK} = t\underline{u} + t\underline{v} + (1-t)\underline{w}} \end{aligned}$$

$\overline{AK} = t\underline{u} + t\underline{v} + (1-t)\underline{w}$:

() ABCD $\overline{AK} = r\overline{AG} + \beta\overline{AF}$ (2)

. ,DE - BE F - G

\overline{AK}

$$\begin{aligned} \overline{AK} &= r\overline{AG} + \beta\overline{AF} \\ \overline{AK} &= \frac{1}{2}r(\overline{AE} + \overline{AD}) + \frac{1}{2}\beta(\overline{AE} + \overline{AB}) \\ \overline{AK} &= \frac{1}{2}r(\underline{w} + \underline{v}) + \frac{1}{2}\beta(\underline{w} + \underline{u}) \\ \boxed{\overline{AK} = \frac{1}{2}\beta\underline{u} + \frac{1}{2}r\underline{v} + \frac{1}{2}(r + \beta)\underline{w}} \end{aligned}$$

:

, \overline{AK}

$$\begin{cases} \frac{1}{2}\beta = t \rightarrow \beta = 2t \\ \frac{1}{2}r = t \rightarrow r = 2t \\ \frac{1}{2}(r + \beta) = 1 - t \end{cases}$$

$\frac{1}{2}(2t + 2t) = 1 - t \rightarrow 2t = 1 - t$

$$\boxed{t = \frac{1}{3}}$$

() $AK : KC = 1 : 2$ 1 : 2 EC K

1 : 2 :

.F , A , G

() $\overline{AF} - \overline{AG}$.

() \overline{AK} , $\overline{AK} = r\overline{AG} + \beta\overline{AF}$:

K

F , K , A , G

"

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

$$f_1: 3 \quad (x, y, z)$$

:

$$3 = \frac{|2x + y - 2z|}{\sqrt{2^2 + 1^2 + (-2)^2}} \rightarrow \boxed{9 = |2x + y - 2z|}$$

$$f_2: 5 \quad (x, y, z)$$

:

$$5 = \frac{|x - 2y + 2z|}{\sqrt{2^2 + (-2)^2 + 2^2}} \rightarrow \boxed{15 = |x - 2y + 2z|}$$

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$$+ \begin{cases} 9 = 2x + y - 2z \\ 15 = x - 2y + 2z \end{cases}$$

$$\Leftrightarrow 24 = 3x - y$$

$$\Leftrightarrow \boxed{x = t}$$

$$\Leftrightarrow \boxed{y = 3t - 24}$$

$$\Leftrightarrow 15 = t - 2(3t - 24) + 2z$$

$$\Leftrightarrow 15 - t + 6t + 48 = 2z$$

$$\Leftrightarrow 2z = 33 + 5t$$

$$\Leftrightarrow \boxed{z = 2.5t + 16.5}$$

$$, (t, 3t - 24, 2.5t - 16.5)$$

$$(0, -24, -16.5) + t(1, 3, 2.5) :$$

$$(0, -24, -16.5) + t(1, 3, 2.5) :$$

:

.B yz ,A xz (0, -24, -16.5) + t(1, 3, 2.5) .

.(0, -24, -16.5) B

$$x = 0 : yz$$

$$y = 0 : xz$$

$$:$$

$$y = 0$$

$$3t - 24 = 0$$

$$\boxed{t = 8}$$

$$x = 0$$

$$z = 2.5 \cdot 8 - 16.5 = 3.5$$

.(8, 0, 3.5) A

AD = BC = 5 : , f_2

$$AB = \sqrt{(8-0)^2 + (0-(-24))^2 + 3.5-(-16.5)^2} = 32.25$$

$$S = AB \cdot AC = 32.25 \cdot 5 = 161.245 :$$

. " 161.245 ABCD :

, , : _____

. " $5\sqrt{65} = 40.311$ ABCD :

$$z^2 - (2 \cos \theta) \cdot z + 1 = 0$$

z

(1)

:

$$z_{1,2} = \frac{2 \cos \theta \pm \sqrt{(2 \cos \theta)^2 - 4}}{2}$$

$$z_{1,2} = \frac{2 \cos \theta \pm \sqrt{4 \cos^2 \theta - 4}}{2}$$

$$z_{1,2} = \frac{2 \cos \theta \pm \sqrt{4(\cos^2 \theta - 1)}}{2}$$

$$z_{1,2} = \frac{2 \cos \theta \pm \sqrt{-4(1 - \cos^2 \theta)}}{2}$$

$$z_{1,2} = \frac{2 \cos \theta \pm \sqrt{-4 \sin^2 \theta}}{2}$$

$$z_{1,2} = \frac{2 \cos \theta \pm 2i \sin \theta}{2}$$

$$z_{1,2} = \cos \theta \pm i \sin \theta$$

$$z_1 = \cos \theta + i \sin \theta \rightarrow \boxed{z_1 = cis \theta}$$

$$z_2 = \cos \theta - i \sin \theta \rightarrow \cos(-\theta) + i \sin(-\theta) \rightarrow \boxed{z_2 = cis(-\theta)}$$

$$z_2 = cis(-\theta), z_1 = cis \theta \quad :$$

(2)

, , , " - " ,
 , Oz_2 Oz_1 ()
 $(0^\circ - 180^\circ) f - 0$
 $\cdot (360^\circ) 2f$, ,
 $0 \leq n \leq 2f$

	$0 \leq n \leq \frac{f}{2}$: $2n$ Oz_2 Oz_1
	$2f - 0$ $\frac{f}{2} \leq n \leq f$ $2f - 2n$ Oz_2 Oz_1
	$f \leq n \leq \frac{3f}{2}$ $2n - 2f$ Oz_2 Oz_1
	$\frac{3f}{2} \leq n \leq 2f$ $4f - 2n$ Oz_2 Oz_1

()

$$\frac{|n|}{2f} ()$$

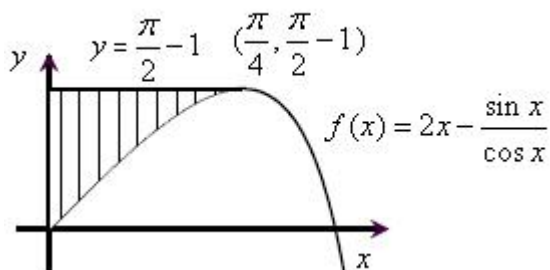
$$0 \leq |n| \leq 2f$$

$$|n|$$

:

$\frac{ n }{2f} ()$	O_{z_2} O_{z_1}
$0 \leq \text{mod}(2f) \leq \frac{f}{2}$	$ 2_n $
$\frac{f}{2} \leq \text{mod}(2f) \leq f$	$2f - 2_n $
$f \leq \text{mod}(2f) \leq \frac{3f}{2}$	$ 2_n - 2f$
$\frac{3f}{2} \leq \text{mod}(2f) < 2f$	$4f - 2_n $

$$\begin{aligned}
 & \cdot 0 \leq x \leq \frac{f}{2} & f(x) = 2x - \tan x & \quad f(x) = 2x - \frac{\sin x}{\cos x} \\
 & & f\left(\frac{f}{4}\right) = 2 \cdot \frac{f}{4} - \tan \frac{f}{4} = \frac{f}{2} - 1 : & \\
 & & , \left(\frac{f}{4}, \frac{f}{2} - 1\right) : & \quad / \\
 & & y = \frac{f}{2} - 1 &
 \end{aligned}$$



:

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$$\frac{du}{dx} = -\sin x : \quad u(x) = \cos x :$$

$$\sin x \, dx = -du :$$

$$\begin{aligned}
 & \int \frac{\sin x}{\cos} \, dx = \\
 & = \int -\frac{1}{u} \, du = \\
 & = -\ell n|u| + c \\
 & = -\ell n|\cos x| + c
 \end{aligned}$$

$$S = \int_0^{\frac{f}{4}} \left(\frac{f}{2} - 1 - \left(2x - \frac{\sin x}{\cos x} \right) \right) dx$$

$$S = \int_0^{\frac{f}{4}} \left(\frac{f}{2} - 1 - 2x + \frac{\sin x}{\cos x} \right) dx$$

$$S = \left(\frac{f}{2} x - x - x^2 - \ell n|\cos x| \right) \Big|_0^{\frac{f}{4}}$$

$$S = \left(\frac{f}{2} \cdot \frac{f}{4} - \frac{f}{4} - \left(\frac{f}{4}\right)^2 - \ell n \left| \cos \frac{f}{4} \right| \right) - \left(\frac{f}{2} \cdot 0 - 0 - (0)^2 - \ell n|\cos 0| \right)$$

$$S = \left(\frac{f^2}{8} - \frac{f}{4} - \frac{f^2}{16} - \ell n \frac{\sqrt{2}}{3} \right) - (0 - \ell n 1)$$

$$S = \boxed{0.178}$$

• " 0.178

:

"

$$f(x) = \log_{\frac{1}{2}} x + a \log_{\frac{1}{2}} (6-x)$$

$$f(x) = \frac{\ln x}{\ln \frac{1}{2}} + \frac{a \ln(6-x)}{\ln \frac{1}{2}} \leftarrow \log_a x = \frac{\log_b x}{\log_b a}$$

$$f(x) = \frac{\ln x}{-\ln 2} + \frac{a \ln(6-x)}{-\ln 2} \leftarrow \ln \frac{1}{2} = \ln 2^{-1}$$

$$\boxed{f(x) = -\frac{1}{\ln 2} (\ln x + a \ln(6-x))}$$

:

$$f(4) = -\frac{1}{\ln 2} (\ln 4 + a \ln(6-4))$$

$$f(4) = -\frac{1}{\ln 2} (2 \ln 2 + a \ln(2)) \leftarrow \ln 4 = \ln 2^2$$

$$f(4) = -2 - a$$

$$(4, -2-a) :$$

$$(4 + 12 \ln 2, 0)$$

$$, x = 4 + 12 \ln 2$$

x -

:

$$m = \frac{-2-a-0}{4-(4+12 \ln 2)}$$

$$m = \frac{-2-a}{-12 \ln 2}$$

$$\boxed{m = \frac{2+a}{12 \ln 2}}$$

:

$$f(x) = -\frac{1}{\ln 2} (\ln x + a \ln(6-x))$$

$$f'(x) = -\frac{1}{\ln 2} \left(\frac{1}{x} - \frac{a}{6-x} \right)$$

$$m = -\frac{1}{\ln 2} \left(\frac{1}{4} - \frac{a}{6-4} \right)$$

$$\boxed{m = -\frac{1}{\ln 2} \left(\frac{1}{4} - \frac{a}{2} \right)}$$

: a

$$\frac{2+a}{12\ln 2} = -\frac{1}{\ln 2} \left(\frac{1}{4} - \frac{a}{2} \right) \quad / \cdot \ln 2$$

$$\frac{2+a}{12} = -\left(\frac{1}{4} - \frac{a}{2} \right) \quad / \cdot 12$$

$$2+a = -3+6a$$

$$5a = 5$$

$$\boxed{a=1}$$

a = 1 :

$$x^{\frac{(\log_2 x + \log_{\frac{1}{4}} 4)}{4}} < 4$$

$$\boxed{x > 0}$$

$$- \log_2 x$$

$$\log_2 x^{\frac{(\log_2 x + \log_{\frac{1}{4}} x)}{4}} < \log_2 4$$

$$(\log_2 x + \log_{\frac{1}{4}} 4) \log_2 x < \log_2 4 \quad \leftarrow \log_a x^n = n \log_a x$$

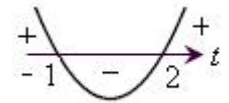
$$(\log_2 x + \log_{\frac{1}{4}} 4) \log_2 x < \log_2 4 \quad \leftarrow \log_{\frac{1}{4}} 4 = -1, \log_2 4 = 2$$

$$(t-1)t < 2 \quad \leftarrow \boxed{\log_2 x = t}$$

$$t^2 - t - 2 < 0$$

$$(t-2)(t+1) < 0$$

:



$$-1 < t < 2 :$$

$$-1 < \log_2 x < 2 :$$

$$- \log_2 x$$

$$-1 < \log_2 x < 2$$

$$2^{-1} < x < 2^2$$

$$\boxed{\frac{1}{2} < x < 4} :$$

$$\frac{1}{2} < x < 4 :$$