

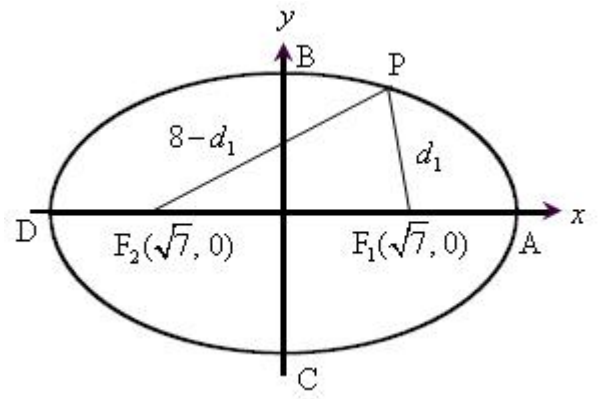
$x_A = x_P = s$, $y_A = \sqrt{R^2 - s^2}$ - P(s, t)
 $A(s, +\sqrt{R^2 - s^2})$ A
 $x^2 + y^2 = R^2$ A
 $y = \frac{\sqrt{R^2 - s^2}}{s} x$ AO
 $y_P = y_P = t$, $x_B = \frac{st}{\sqrt{R^2 - s^2}}$ B
: AO B x -
 $t = \frac{\sqrt{R^2 - s^2}}{s} x \rightarrow x = \frac{st}{\sqrt{R^2 - s^2}}$
. B($\frac{st}{\sqrt{R^2 - s^2}}$, t)
: $x^2 + y^2 = 2$ B
 $\frac{s^2 t^2}{R^2 - s^2} + t^2 = 2 \rightarrow s^2 t^2 + R^2 t^2 - s^2 t^2 = 2R^2 - 2s^2$
 $2s^2 + R^2 t^2 = 2R^2$
 $\frac{s^2}{R^2} + \frac{t^2}{2} = 1$

$$\frac{x^2}{R^2} + \frac{y^2}{2} = 1 \quad (x, y > 0)$$

$$\frac{x^2}{R^2} + \frac{y^2}{2} = 1 \quad (x, y > 0)$$

(a = R, b = $\sqrt{2}$, F₁($\sqrt{R^2 - 2}$, 0)).

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$\cdot B(0, 3), F_2(-c, 0)$

$\cdot \angle BAC$

$\angle AOB$

$\angle AOB$

$\angle BAC$

$\cdot \angle BAO = 36.86989765^\circ$

$\angle BAC = 73.739795^\circ$

$tg \angle BAC = \frac{24}{7}$

$\cdot \frac{BO}{AO} = \frac{3}{4}$

$tg \angle BAO = \frac{BO}{AO}$

$\angle CAO$

$\cdot A(a, 0), B(0, b):$

$\cdot \frac{b}{a} = 0.75 :$

$\cdot c = \sqrt{7}, (\sqrt{7}, 0)$

$\cdot a^2 - b^2 = 7 :$

$a^2 - b^2 = c^2 :$

$$\begin{cases} b = 0.75a \\ a^2 - b^2 = 7 \end{cases} :$$

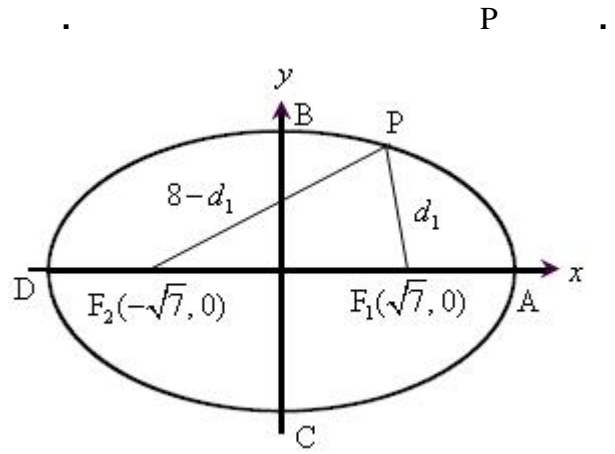
$a^2 - (0.75a)^2 = 7$

$a = 4 \rightarrow b = 3$

$\frac{x^2}{16} + \frac{y^2}{9} = 1$

$\cdot \frac{x^2}{16} + \frac{y^2}{9} = 1$

:



• $F_1(c, 0), F_2(-c, 0) :$

$2a$

• $d_1, 8-d_1 :$

$d_1 + d_2 = 8 :$

• $\angle F_1PF_2 = 90^\circ$

, F_1PF_2

$$d_1^2 + (8-d_1)^2 = (2\sqrt{7})^2$$

$$d_1^2 + 64 - 16d_1 + d_1^2 = 28$$

$$2d_1^2 - 16d_1 + 36 = 0$$

• $\angle F_1PF_2 \neq 90^\circ$

$\Delta < 0 :$

$x^2 + y^2 = 4 :$

$2c = 4$

P $\angle F_1PF_2 = 90^\circ$

, - B(0, 4) , B(0, 4)

, 4 - 2

P

$$, AA' = m, AD = 3, DC = 4$$

$$A(3, 0, 0), C(0, 4, 0), B'(3, 4, m) :$$

$$\overrightarrow{AB'} = \underline{B'} - \underline{A}$$

$$\overrightarrow{AB} = \underline{x} = (0, 4, m)$$

$$\overrightarrow{AC} = \underline{C} - \underline{A}$$

$$\overrightarrow{AC} = \underline{x} = (-3, 4, 0)$$

:

$$, \pi : \underline{x} = (3, 0, 0) + t(0, 4, m) + s(-3, 4, 0)$$

, 0 -

$$\begin{vmatrix} + & - & + \\ x-3 & y-0 & z-0 \\ 0 & 4 & m \\ -3 & 4 & 0 \end{vmatrix} = 0$$

$$(x-3)(0-4m) - y(0-(-3m)) + z(0-(-12)) = 0$$

$$-4mx + 12m - 3my + 12z = 0$$

$$\boxed{4mx + 3my - 12z - 12m = 0}$$

$$4mx + 3my - 12z - 12m = 0$$

:

. ACB'

BACB' - D'ACB'

B - D'

$$\frac{V_{D'ACB'}}{V_{BACB'}} = \frac{d_{D'f}}{d_{Bf}} = \frac{\frac{|4m \cdot 0 + 3m \cdot 0 - 12m - 12m|}{\sqrt{(4m)^2 + (3m)^2 + 12^2}}}{\frac{|4m \cdot 3 + 3m \cdot 4 - 12 \cdot 0 - 12m|}{\sqrt{(4m)^2 + (3m)^2 + 12^2}}} = \frac{24m}{12m} = 2$$

.2 BACB'

D'ACB'

:

. $\underline{x} = (0, 0, 1)$

z -

BB'

:

$$\frac{|(0, 0, 1)(4m, 3m, 12)|}{\sqrt{0^2 + 0^2 + 1^2} \sqrt{(4m)^2 + (3m)^2 + 12^2}} = \sin 30^\circ$$

$$\frac{12}{\sqrt{1} \sqrt{25m^2 + 144}} = 0.5$$

$$24 = \sqrt{25m^2 + 144} \quad ()^2$$

$$576 = 25m^2 + 144$$

$$m^2 = 17.28$$

$$\boxed{m = 4.16} \leftarrow m > 0$$

-(

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,

$m = 4.16$:

$$|2 + 3^{x^2-x-1} - 12i| > 13 : \quad -$$

$$\sqrt{x^2 + b^2} \quad z = a + bi$$

$$\sqrt{(2 + 3^{x^2-x-1})^2 + 12^2} > 13 \quad ()^2$$

$$(2 + 3^{x^2-x-1})^2 + 144 > 169$$

$$(2 + 3^{x^2-x-1})^2 > 25$$

$$2 + 3^{x^2-x-1} > 5$$

$$2 + 3^{x^2-x-1} < -5$$

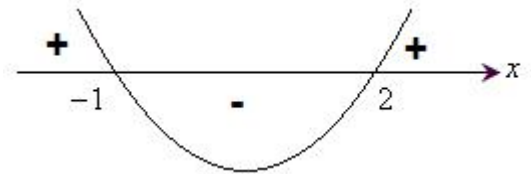
$$3^{x^2-x-1} > 3$$

$$3^x \quad 1 -$$

$$x^2 - x - 1 > 1$$

$$x^2 - x - 2 > 0$$

$$(x-2)(x+1) > 0$$



$$x < -1 \quad x > 2 \quad ,$$

$$x < -1 \quad x > 2 :$$

$z :$

$$-1 \leq a \leq 1 \quad z = a + bi :$$

$$t = z + \bar{z}$$

$$t = a + bi + a - bi$$

$$t = 2a$$

$$-2 \leq t \leq 2 : a$$

$$-2 \leq t \leq 2 :$$

$$f(x) = \frac{e^{2x} + 4e^x + 3}{(e^x - 3)^2}$$

:

$$(e^x - 3)^2 \neq 0$$

$$e^x - 3 \neq 0$$

$$e^x \neq 3$$

$$\boxed{x \neq \ln 3}$$

$x \neq \ln 3$:

:

$x = \ln 3$,

$x = \ln 3$

x	10	15	20	-10	-15	-20
y	1.0045	1.000003	1.00000002	0.33337	0.33333336	0.333333334

$$y = \frac{1}{3}, y = 1$$

$$y = \frac{1}{3}, y = 1, x = \ln 3 :$$

:

.x

, () x

$$: f(0) = \frac{e^{2 \cdot 0} + 4e^0 + 3}{(e^0 - 3)^2} = \frac{8}{4} = 2 \quad x = 0 \quad y =$$

.(0, 2) :

$$f(x) = \frac{e^{2x} + 4e^x + 3}{(e^x - 3)^2}$$

$$f'(x) = \frac{(2e^{2x} + 4e^x)(e^x - 3)^2 - 2e^x(e^x - 3)(e^{2x} + 4e^x + 3)}{(e^x - 3)^4}$$

$$f'(x) = \frac{(e^x - 3)((2e^{2x} + 4e^x)(e^x - 3) - 2e^x(e^{2x} + 4e^x + 3))}{(e^x - 3)^4}$$

$$f'(x) = \frac{(e^x - 3)(2e^{3x} - 6e^{2x} + 4e^{2x} - 12e^x - 2e^{3x} - 8e^{2x} - 6e^x)}{(e^x - 3)^4}$$

$$f'(x) = \frac{(e^x - 3)(-10e^{2x} - 18e^x)}{(e^x - 3)^4}$$

$$x > \ln 3, e^x > 3$$

$$x < \ln 3, x > \ln 3 -$$

