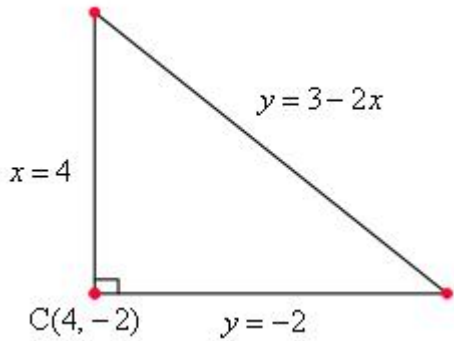


$y = 3 - 2x$

$x_A > x_B, C(4, -2), \angle C = 90^\circ,$

ABC



$(2.5, -2)$

$(4, -5)$

$x = 4$

$2x = 5 \leftarrow -2 = 3 - 2x, y = -2$

$B(2.5, -2) - A(4, -5) : x_A > x_B$

$B(2.5, -2) - A(4, -5) :$

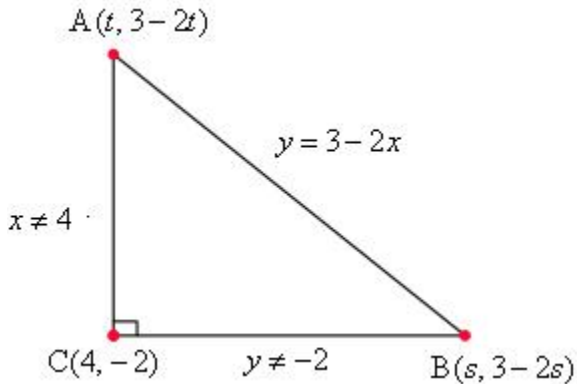
$(y \neq -2) \quad x \neq 4$

(2)

(1) :

(1)

$(t > s) B(s, 3 - 2s), A(t, 3 - 2t) :$



$(AB)^2 = (4 - 2.5)^2 + (-5 - (-2))^2 = 11.25$

$(t - s)^2 + (3 - 2t - (3 - 2s))^2 = 11.25$

$(t - s)^2 + (2s - 2t)^2 = 11.25$

$(t - s)^2 + 4(t - s)^2 = 11.25$

$5(t - s)^2 = 11.25$

$(t - s)^2 = 2.25$

$t - s = 1.5$

~~$t - s = -1.5$~~   $\leftarrow t > s$

$(t > s) B(t - 1.5, 3 - 2(t - 1.5)) \rightarrow B(t - 1.5, 6 - 2t), A(t, 3 - 2t)$

$-1 -$

$m_{AC} \cdot m_{BC} = \frac{3 - 2t - (-2)}{t - 4} \cdot \frac{6 - 2t - (-2)}{t - 5.5} = \frac{5 - 2t}{t - 4} \cdot \frac{8 - 2t}{t - 5.5} = -1 \quad / t \neq 4$

$-10 + 4t = -t + 5.5$

$5t = 15.5$

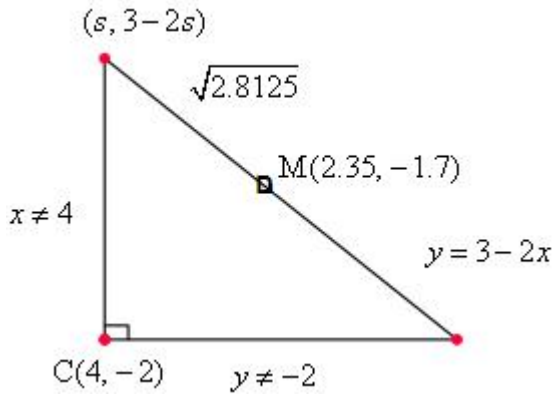
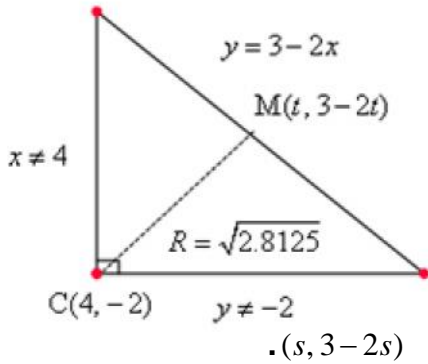
$t = 3.1$

$B(1.6, -0.2) - A(3.1, -3.2) : , t = 3.1$

$B(1.6, -0.2), A(3.1, -3.2) :$

$$, x = \frac{x_A + x_B}{2} = \frac{4 + 2.5}{2} = 3.25 :$$

.( ) ,



$$.M(t, 3 - 2t) ,$$

$$C(4, -2) \quad M(t, 3 - 2t)$$

$$, (AB)^2 = (4 - 2.5)^2 + (-5 - (-2))^2 = 11.25$$

$$(MC)^2 = \left(\frac{\sqrt{11.25}}{2}\right)^2 = 2.8125$$

$$(t - 4)^2 + (3 - 2t - (-2))^2 = 2.8125$$

$$(t - 4)^2 + (5 - 2t)^2 = 2.8125$$

$$5t^2 - 28t + 38.1875 = 0$$

$$t_{1,2} = \frac{-28 \pm 4.5}{10}$$

$$~~t = 3.25~~ \leftarrow t \neq 3.25$$

$$t = 2.35 \rightarrow M(2.35, -1.7)$$

.( )

$$(s - 2.35)^2 + (3 - 2s - (-1.7))^2 = 2.8125$$

$$(s - 2.35)^2 + (4.7 - 2s)^2 = 2.8125$$

$$(s - 2.35)^2 + 4(2.35 - s)^2 = 2.8125$$

$$5(s - 2.35)^2 = 2.8125$$

$$(s - 2.35)^2 = 0.5625 \rightarrow s - 2.35 = \pm 0.75$$

$$\left. \begin{aligned} S_1 = 3.1 &\rightarrow A(3.1, -3.2) \\ S_2 = 1.6 &\rightarrow B(1.6, -0.2) \end{aligned} \right\} \leftarrow x_A > x_B$$

$$.B(1.6, -0.2) , A(3.1, -3.2) :$$

$$|\underline{u}| = |\underline{v}| = |\underline{w}| \rightarrow \underline{u}^2 = \underline{v}^2 = \underline{w}^2, \quad \overline{SC} = \underline{w}, \overline{SB} = \underline{v}, \overline{SA} = \underline{u}$$

$$\underline{uv} = \underline{uw} = \underline{vw}$$

, ABC

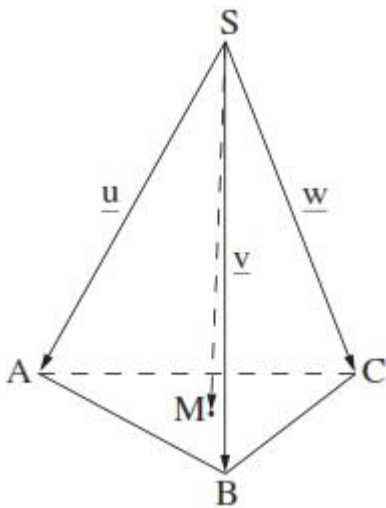
$$\overline{SM} = \frac{1}{3}\underline{u} + \frac{1}{3}\underline{v} + \frac{1}{3}\underline{w}$$

$$\overline{AB} = \overline{AS} + \overline{SB} \rightarrow \overline{AB} = -\underline{u} + \underline{v}$$

$$\overline{AC} = \overline{AS} + \overline{SC} \rightarrow \overline{AC} = -\underline{u} + \underline{w}$$

$$\overline{SM} \cdot \overline{AB} = -\frac{1}{3}\underline{u}^2 + \frac{1}{3}\cancel{\underline{uv}} - \frac{1}{3}\cancel{\underline{uv}} + \frac{1}{3}\underline{v}^2 - \frac{1}{3}\underline{uw} + \frac{1}{3}\underline{vw} = 0 \quad \leftarrow \underline{uw} = \underline{vw}, \underline{u}^2 = \underline{v}^2$$

$$\overline{SM} \cdot \overline{AC} = -\frac{1}{3}\underline{u}^2 + \frac{1}{3}\cancel{\underline{uw}} - \frac{1}{3}\underline{uv} + \frac{1}{3}\underline{vw} - \frac{1}{3}\cancel{\underline{uw}} + \frac{1}{3}\underline{w}^2 = 0 \quad \leftarrow \underline{uv} = \underline{vw}, \underline{u}^2 = \underline{w}^2$$



. ABC

$$\overline{SM} = \frac{1}{3}\underline{u} + \frac{1}{3}\underline{v} + \frac{1}{3}\underline{w}$$

$$\underline{u} = \left(-\frac{3}{2}, -\frac{\sqrt{3}}{2}, -2\right), \quad \underline{v} = \left(\frac{3}{2}, -\frac{\sqrt{3}}{2}, -2\right), \quad \underline{w} = (0, \sqrt{3}, -2) :$$

$$\overline{SM} = \frac{1}{3}\left(-\frac{3}{2}, -\frac{\sqrt{3}}{2}, -2\right) + \frac{1}{3}\left(\frac{3}{2}, -\frac{\sqrt{3}}{2}, -2\right) + \frac{1}{3}(0, \sqrt{3}, -2)$$

$$\overline{SM} = (0, 0, -2)$$

$$\underline{n} = (0, 0, -2)$$

$$. z + d = 0$$

$$\underline{n} = (0, 0, 1)$$

$$([x, y] \quad ) z = 0 \quad \text{ABC}$$

$$, z_C = 0 \quad , C(0, \sqrt{3}, 0)$$

$$. z = 0 \quad \text{ABC} :$$

. ABC

30°

, AB

, C

$$\cdot \overline{AB} = -\underline{u} + \underline{v} = -\left(-\frac{3}{2}, -\frac{\sqrt{3}}{2}, -2\right) + \left(\frac{3}{2}, -\frac{\sqrt{3}}{2}, -2\right) = (3, 0, 0)$$

. 0

x -

x -

$$(a \cdot 3 + b \cdot 0 + c \cdot 0 = 0 \rightarrow a = 0 \quad ,$$

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

$$\cdot \underline{n} = (0, b, c)$$

. z = 0

, ABC

30°

$$\cos 30^\circ = \frac{|(0, 0, 1)(0, b, c)|}{|(0, 0, 1)|| (0, b, c)|}$$

$$\frac{\sqrt{3}}{2} = \frac{|c|}{\sqrt{b^2 + c^2}} \rightarrow \frac{3}{4} = \frac{c^2}{b^2 + c^2}$$

$$3b^2 + 3c^2 = 4c^2 \rightarrow 3b^2 = c^2$$

$$\cdot y \pm \sqrt{3} z + d = 0 :$$

$$c = \pm\sqrt{3} \quad , b = 1$$

$$\cdot d = -\sqrt{3}$$

$$C(0, \sqrt{3}, 0)$$

$$\cdot y - \sqrt{3} z - \sqrt{3} = 0 \quad , y + \sqrt{3} z - \sqrt{3} = 0$$

:

,  $z_1$  (O)

. -1 -

,  $\frac{z_1}{z_2}$

-  $z_2$

$$\cdot (m_{z_2 O} = \frac{d}{c}) z_2 = c + di \quad \cdot (m_{z_1 O} = \frac{b}{a}) z_1 = a + bi$$

$$\frac{z_1}{z_2} = \frac{a + bi}{c + di}$$

$$\frac{z_1}{z_2} = \frac{a + bi}{c + di} \cdot \frac{c - di}{c - di}$$

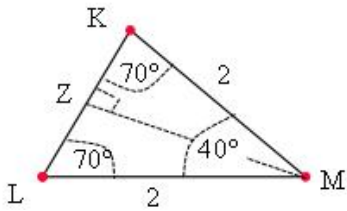
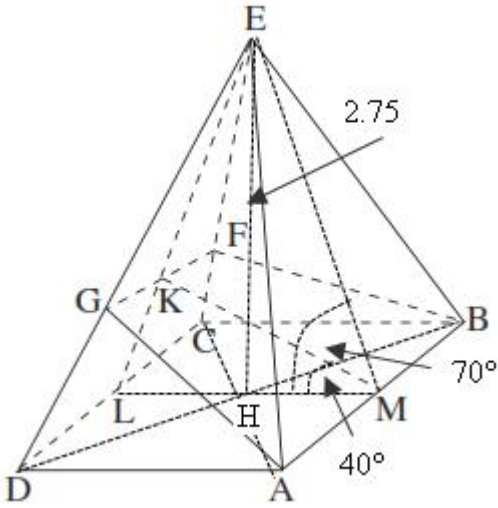
$$\frac{z_1}{z_2} = \frac{ac - adi + bci + bd}{c^2 + d^2}$$

$$\frac{z_1}{z_2} = \frac{ac + bd}{c^2 + d^2} + \frac{-ad + bc}{c^2 + d^2} i$$

$$\cdot bd = -ac \quad , ac + bd = 0 \quad , 0 -$$

$$\cdot \frac{b}{a} \cdot \frac{d}{c} = -1$$

. :



,EDC DC EL  
 . ABCD DC L ,  
 ,AB - KM  
 . ABCD M  
 ( ) H LM  
 . ABCD GFBA  
 .  $\sphericalangle$ KML ,(AB )  
 , EDC  $\sphericalangle$ KLM  
 ) KML  
 . (KZ = LZ) ,MZ

,EMH

.EH = " 2.75

$\Delta$ EMH

$$\tan \sphericalangle EMH = \frac{EH}{MH}$$

$$\tan 70^\circ = \frac{2.75}{MH}$$

$$MH = \frac{2.75}{\tan 70^\circ}$$

$\boxed{MH = 1} \rightarrow \boxed{LM = 2}$

$\Delta$ ZML

$$\cos \sphericalangle ZLM = \frac{LZ}{LM}$$

$$\cos 70^\circ = \frac{LZ}{2}$$

$$LZ = 2 \cos 70^\circ$$

$\boxed{LM = 0.684} \rightarrow \boxed{KL = 1.368}$

. " 1.368 KL :

$$a < 0, f(x) = \frac{a \ln x}{\sqrt{x}}$$

$$x > 0$$

(1)

$$x > 0 :$$

$$y = 0$$

$$x = 1$$

(2)

$$(1, 0)$$

$$x = 1$$

$$\ln x = 0$$

$$y =$$

$$(1, 0) :$$

:

(3)

$$f'(x) = a \cdot \frac{\frac{\sqrt{x}}{x} - \frac{\ln x}{2\sqrt{x}}}{x}$$

$$f'(x) = a \cdot \frac{\frac{1}{\sqrt{x}} - \frac{\ln x}{2\sqrt{x}}}{x}$$

$$f'(x) = \frac{2 - \ln x}{2x\sqrt{x}}$$

$$0 = 2 - \ln x$$

$$\ln x = 2$$

$$x = e^2$$

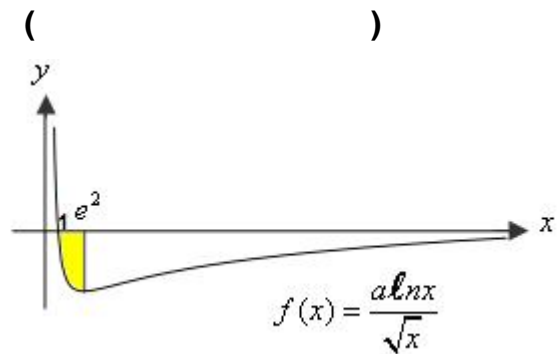
$$f(e^2) = \frac{a \ln e^2}{\sqrt{e^2}} = \frac{2a}{e} = 0.736a, f(e) = \frac{a \ln e}{\sqrt{e}} = \frac{a}{\sqrt{e}} = 0.6a, f(e^3) = \frac{a \ln e^3}{\sqrt{e^3}} = \frac{3a}{\sqrt{e^3}} = 0.67a$$

$$0.736a - a < 0$$

$$x > e^2 :$$

$$, 0 < x < e^2 :$$

:



$$\frac{8f}{3}$$

$$V = f \int_1^{e^2} \left( \frac{a \ln x}{\sqrt{x}} \right)^2 dx$$

$$V = f \int_1^{e^2} \left( a^2 \frac{\ln^2 x}{x} \right) dx$$

$$V = f a^2 \int_1^{e^2} \left( \ln^2 x \cdot \frac{1}{x} \right) dx$$

$$V = \frac{f a^2 \ln^3 x}{3} \Big|_1^{e^2}$$

$$V = \frac{f a^2}{3} (\ln^3 e^2 - \ln^3 1)$$

$$V = \frac{f a^2}{3} (8 - 0)$$

$$\boxed{V = \frac{8f a^2}{3}}$$

$$\frac{8f a^2}{3} = \frac{8f}{3}$$

$$a^2 = 1$$

$$\boxed{a = -1} \quad \leftarrow a < 0$$

$$. a = -1 :$$



$a, x$

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

(1)

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

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

$$f(-x) = f(x)$$

(2)

$$f'(x) = 2xe^{-0.5x^2} + (x^2 - a)e^{-0.5x^2}(-x)$$

$$f'(x) = xe^{-0.5x^2}(2 - x^2 + a)$$

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

$$f'(-x) = -xe^{-0.5x^2}(2 - x^2 + a)$$

$$f'(-x) = -f'(x)$$

$$f'(\sqrt{2.5}) = 0 \quad x = \sqrt{2.5}$$

$$0 = \sqrt{2.5}e^{-0.5\sqrt{2.5}^2}(2 - \sqrt{2.5}^2 + a)$$

$$2 - 2.5 + a = 0$$

$$a = 0.5$$

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

$$f'(x) = xe^{-0.5x^2}(2.5 - x^2)$$

$$f'(x) = e^{-0.5x^2}(2.5x - x^3)$$

$$f''(x) = -xe^{-0.5x^2}(2.5x - x^3) + e^{-0.5x^2}(2.5 - 3x^2)$$

$$f''(x) = e^{-0.5x^2}(x^4 - 5.5x^2 + 2.5)$$

$$0 = x^4 - 5.5x^2 + 2.5 \rightarrow (x^2)_{1,2} = \frac{5.5 \pm 4.5}{2}$$

$$x^2 = 5 \rightarrow x = \sqrt{5} \leftarrow x > 0$$

$$x^2 = 0.5 \rightarrow x = \sqrt{0.5} \leftarrow x > 0$$

$$f''(\sqrt{0.1}) = +(0.01 - 0.55 + 2.5) > 0, f''(1) = +(1 - 5.5 + 2.5) < 0, f''(4) = +(256 - 22 + 2.5) > 0$$

$$x = \sqrt{0.5}$$

$$x = \sqrt{5}$$

$$x = 0$$

$$x = 0, x = \sqrt{2.5}$$

$$f'(x)$$

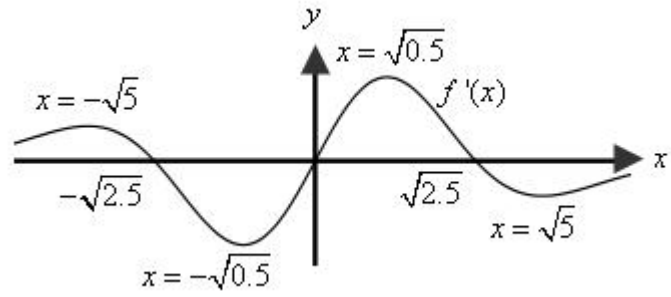
$$x = \sqrt{5},$$

$$x = \sqrt{0.5} :$$

$$x = -\sqrt{5},$$

$$x = -\sqrt{0.5}$$

:



פונקציות הנאלרת.

שיבוצי האסיק,

לקיצון

$$x = \sqrt{0.5} \quad (1)$$

$$, x = \sqrt{0.5} :$$

$$x = -\sqrt{0.5} \quad (2)$$

$$, x = -\sqrt{0.5} :$$