

$$9, 9+d, 9+2d :$$

$$9, 7+d, 9+2d :$$

$$\frac{9+2d}{7+d} = \frac{7+d}{9}$$

$$9(9+2d) = (7+d)^2$$

$$81+18d = 49+14d+d^2$$

$$d^2 - 4d - 32 = 0$$

$$d_{1,2} = \frac{4 \pm 12}{2}$$

$$d_1 = 8, d_2 = -4$$

$$9, 15, 21, \dots \left(q = 1 \frac{2}{3}\right)$$

$$9, 17, 25, \dots : d = 8$$

$$9, 3, 1, \dots \left(q = \frac{1}{3}\right)$$

$$9, 5, 1, \dots : d = -4$$

$$a_2 = 15, \quad a_2 = 17 :$$

$$a_2 = 3, \quad a_2 = 5 :$$

$g(x) = \frac{e^{-2x}}{1+e^x}, f(x) = \frac{e^{-x}}{1+e^x} :$

$f(x) = \frac{e^{-x}}{1+e^x} \tag{1}$

$f'(x) = \frac{-e^{-x}(1+e^x) - e^x e^{-x}}{(1+e^x)^2}$

$f'(x) = \frac{-e^{-x} - 1 - 1}{(1+e^x)^2}$

$f'(x) = \frac{-e^{-x} - 2}{(1+e^x)^2}$

1.  $f(x)$  :  
 1 x  $x$  1  $f(x)$  :

$g(x) = \frac{e^{-2x}}{1+e^x} \tag{2}$

$g'(x) = \frac{-2e^{-2x}(1+e^x) - e^x e^{-2x}}{(1+e^x)^2}$

$g'(x) = \frac{-2e^{-2x} - 2e^{-x} - e^{-x}}{(1+e^x)^2}$

$g'(x) = \frac{-2e^{-2x} - 3e^{-x}}{(1+e^x)^2}$

1 x 1  $g(x)$  :  
 1 x 1  $g(x)$  :

$f(0) = \frac{e^{-0}}{1+e^0} = 0.5 \rightarrow (0, 0.5) \quad x=0 \quad y \tag{1}$

$f(x) = \frac{e^{-x}}{1+e^x}$

, (0, 0.5) :

$g(0) = \frac{e^{-2 \cdot 0}}{1+e^0} = 0.5 \rightarrow (0, 0.5) \quad x=0 \quad y \tag{2}$

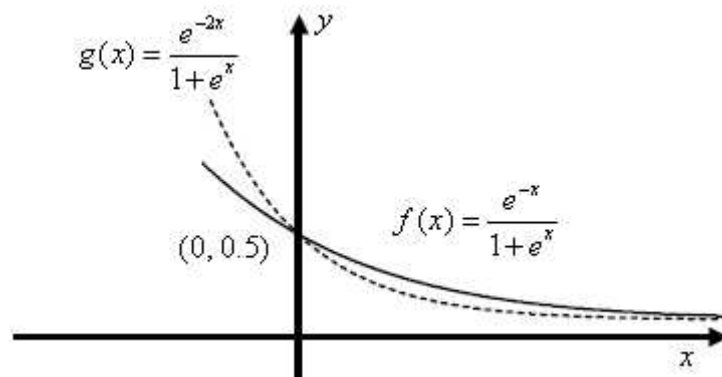
$g(x) = \frac{e^{-2x}}{1+e^x}$

, (0, 0.5) :

$$f(x) = \frac{e^{-x}}{1+e^x}$$

$x >$

$$\lim_{x \rightarrow +\infty} \frac{e^{-x}}{1+e^x} = \frac{0}{\infty} = 0$$



$$e^{-x} > e^{-2x} \quad (1)$$

$$-x > -2x \rightarrow x > 0$$

$x > 0 :$

$$g(x) = \frac{e^{-2x}}{1+e^x}, \quad f(x) = \frac{e^{-x}}{1+e^x} \quad (2)$$

,  $x$

$$, x > 0 \quad f(x) > g(x)$$

.(1)

$$x > 0 \quad g(x)$$

$$f(x)$$

$x > 0 :$

11111111111111111111111111111111

$$f(x) = \frac{1}{3} \ln^3 x + \frac{1}{4} \ln^4 x$$

$x > 0$  ,

$\ln$  - :

$x > 0$  :

$$f(x) = \frac{1}{3} \ln^3 x + \frac{1}{4} \ln^4 x$$

$$f'(x) = 3 \cdot \frac{1}{3} \frac{\ln^2 x}{x} + 4 \cdot \frac{1}{4} \frac{\ln^3 x}{x} \rightarrow \boxed{f'(x) = \frac{\ln^2 x + \ln^3 x}{x}}$$

$$0 = \ln^2 x + \ln^3 x \rightarrow 0 = \ln^2 x(1 + \ln x)$$

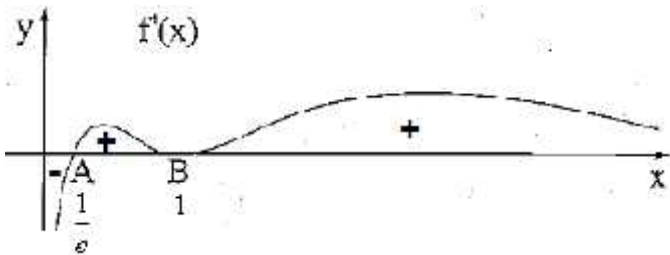
$$\ln^2 x = 0 \rightarrow \ln x = 0 \rightarrow x = 1 \rightarrow y = \frac{1}{3} \ln^3 1 + \frac{1}{4} \ln^4 1 = 0 \rightarrow (1, 0)$$

$$\ln x = -1 \rightarrow x = e^{-1} = \frac{1}{e} \rightarrow y = \frac{1}{3} \ln^3 \left(\frac{1}{e}\right) + \frac{1}{4} \ln^4 \left(\frac{1}{e}\right) = -\frac{1}{12} \rightarrow \left(\frac{1}{e}, -\frac{1}{12}\right)$$

$$f'(1.2) = \ln^2 0.2 + \ln^3 0.2 = -1.58 < 0, \quad f'(0.2) = \ln^2 1.2 + \ln^3 1.2 = 0.04 > 0$$

$x$	0	0.2	$\frac{1}{e} = 0.37$	.	1	1.2
$f(x)$		0	$-\frac{1}{12}$		0	
$f'(x)$		-	0		0	+
		↘	Min	↗		↗

$\left(\frac{1}{e}, -\frac{1}{12}\right)$  :



$f'(x)$  ,

$$B(1, 0) \quad \frac{1}{e} < x < 1 \quad x > 1 \quad f'(x) > 0$$

$$A\left(\frac{1}{e}, 0\right) \quad 0 < x < \frac{1}{e} \quad f'(x) < 0$$

4 B(1, 0) , A(1/e, 0) :

$f(x)$

$x$  -

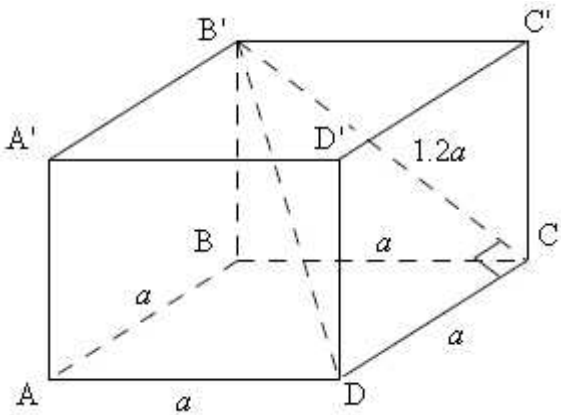
$f'(x)$

$x$  -

$x$  -

$x = 1$  ,

"



, CBB' C' DC

, ( $\sphericalangle DCB' = 90^\circ$ )

DCB'

DC = a ,  $0.6a^2$  - DCB'

:

$\triangle DCB'$

$$0.6a^2 = \frac{a \cdot CB'}{2}$$

$$1.20.6a^2 = a \cdot CB' \quad /: a > 0$$

$$\boxed{CB' = 1.2a}$$

$$CB' = 1.2a :$$

. ABCD DB'

. B' - BB' ,

-  $\sphericalangle B'DB$

DB DB' , ,

$\triangle ADB$

$$(DB')^2 = (CD)^2 + (BD)^2$$

$$(DB')^2 = a^2 + a^2$$

$$(DB')^2 = 2a^2$$

$$\boxed{DB' = a\sqrt{2}}$$

$\triangle DCB'$

$$(DB')^2 = (CB')^2 + (DC)^2$$

$$(DB')^2 = (1.2a)^2 + a^2$$

$$(DB')^2 = 2.44$$

$$\boxed{DB' = 1.562a}$$

$\triangle B'DB$

$$\cos \sphericalangle B'DB = \frac{BD}{CB'} = \frac{a\sqrt{2}}{1.562a}$$

$$\cos \sphericalangle B'DB = 0.905$$

$$\boxed{\sphericalangle B'DB = 25.12^\circ}$$

25.12° . ABCD DB' :

.  $\sphericalangle B'CB$  - ABCD DCB'

. CB' - B'C : , DC

$\triangle B'CB$

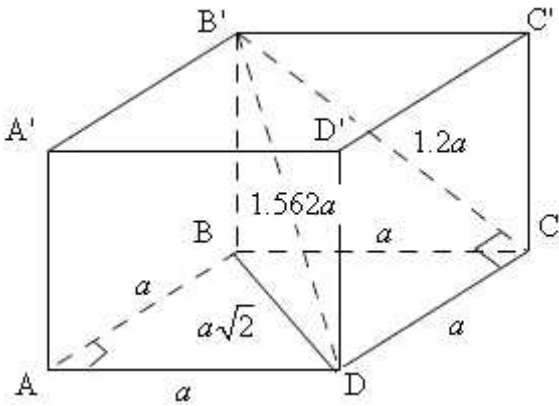
$$\cos \sphericalangle B'CB = \frac{BC}{CB'} = \frac{a}{1.2a}$$

$$\cos \sphericalangle B'CB = 0.833$$

$$\boxed{\sphericalangle B'CB = 33.56^\circ}$$

. 33.56° ABCD DCB' :

"



. CB' - B'C :

"