

$0 < q < 1$, $a_n > 0$, .

$a_3 = 8a_6$

$a_1q^2 = 8a_1q^5 \quad /: 8a_1q^2 > 0$

$\frac{1}{8} = q^3$

$q = 0.5$

$(n -) \quad (-)$

$\frac{a_{n+2}}{a_n} = \frac{a_nq^2}{a_n} = q^2$

$a_2 = a_1q = 0.5a_1$, $q^2 = 0.25$,

$\frac{S}{S_{\text{even}}} = \frac{\frac{a_1}{1-0.5}}{\frac{0.5a_1}{1-0.25}}$

$\frac{S}{S_{\text{even}}} = \frac{a_1 \cdot 0.75}{0.5 \cdot 0.5a_1}$

$\frac{S}{S_{\text{even}}} = 3$

$a_1 \quad q^2 = 0.25$,

$S_{\text{Odd}} = 2$

$\frac{a_1}{1-0.25} = 2$

$a_1 = 1.5$

$a_3 = a_1q^2 = 1.5 \cdot 0.25 = 0.375$

0.375 :

: $\triangle DD'E$.

$$\tan \sphericalangle D'DE = \frac{D'D}{DE} = \frac{3a}{0.5a\sqrt{2}}$$

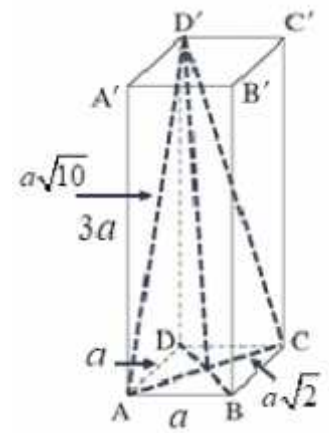
$$\sphericalangle D'DE = 76.74^\circ$$

.76.74°

ABCD

D'E

:



$$-f \leq x \leq f \quad f(x) = 3 \cdot \sin\left(x - \frac{f}{2}\right)$$

$$f(x) = 3 \cdot \sin\left(x - \frac{f}{2}\right)$$

$$f(x) = -3 \sin\left(\frac{f}{2} - x\right) \leftarrow \sin(-x) = -\sin x$$

$$\boxed{f(x) = -3 \cos x} \leftarrow \sin(90^\circ - x) = \cos x$$

$$f(0) = -3 \cdot \cos 0 = -3 \rightarrow (0, -3) : x = 0 \quad y = \quad (1)$$

$$: y = 0 \quad x =$$

$$-3 \cos x = 0$$

$$\cos x = 0$$

$$x = \frac{f}{2} + 2fk$$

$$x = -\frac{f}{2} + 2fk$$

$$k = 0 \quad x = \frac{f}{2} \rightarrow \left(\frac{f}{2}, 0\right) \quad x = -\frac{f}{2} \rightarrow \left(-\frac{f}{2}, 0\right)$$

$$\left(-\frac{f}{2}, 0\right), \left(\frac{f}{2}, 0\right), (0, -3) :$$

(2)

$$f(-f) = -3 \cos(-f) = 3 \rightarrow \boxed{(-f, 3)}$$

$$f(f) = -3 \cos(f) = 3 \rightarrow \boxed{(f, 3)}$$

$$\boxed{f'(x) = 3 \sin x}$$

$$0 = 3 \sin x$$

$$\sin x = 0$$

$$x = 0 + 2fk \quad k = 0 \quad x = 0 \rightarrow (0, -3)$$

$$x = f + 2fk \quad k = 0 \quad x = f \text{ (edge point)}$$

$$k = -1 \quad x = -f \text{ (edge point)}$$

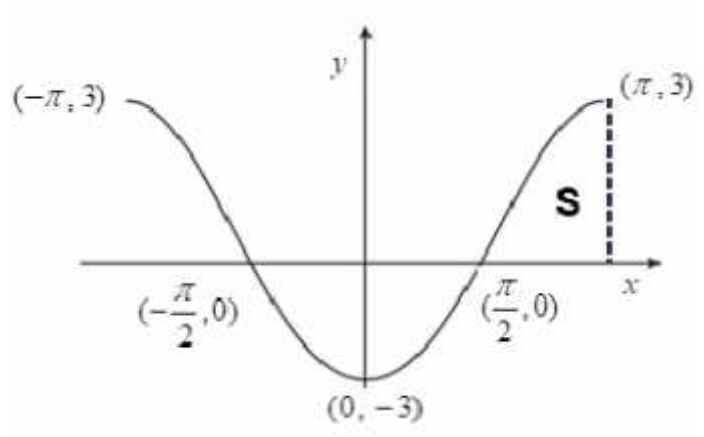
(-edge point)

x	$-f$		0		f
$f(x)$	3		-3		3
$f'(x)$					
	Max	↘	Min	↗	Max

$$(0, -3), \quad (-f, 3), (f, 3) :$$

"

:(,) .



.S - , .

$$S = \int_{\frac{f}{2}}^f (-3 \cos x - 0) dx$$

$$S = (-3 \sin x) \Big|_{\frac{f}{2}}^f$$

$$x = f : 0$$

$$x = \frac{f}{2} : -3$$

$$S = 0 - (-3)$$

$$\boxed{S = 3}$$

. " 3 :

$$f(x) = 4^{2x} - 4^x - 2 \quad (1)$$

$$f(0) = 4^{2 \cdot 0} - 4^0 - 2 = -2 \rightarrow (0, -2) \quad (2)$$

$$4^x = t \quad y = 0 \quad x =$$

$$4^{2x} - 4^x - 2 = 0$$

$$t^2 - t - 2 = 0$$

$$t = 2 \rightarrow 4^x = 2 \rightarrow 2^{2x} = 2 \rightarrow 2x = 1 \rightarrow x = 0.5 \rightarrow (0.5, 0)$$

$$t = -1 \rightarrow \text{impossible}$$

$$(0.5, 0), (0, -2) :$$

$$f(x) \quad (3)$$

$$f'(x) = 2 \cdot 4^{2x} \cdot \ln 4 - 4^x \cdot \ln 4$$

$$f'(x) = (2 \cdot 4^{2x} - 4^x) \ln 4$$

$$0 = 2 \cdot 4^{2x} - 4^x$$

$$0 = 4^x (2 \cdot 4^x - 1)$$

$$2 \cdot 4^x - 1 = 0$$

$$4^x = \frac{1}{2}$$

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

$$x = -\frac{1}{2} \rightarrow y = 4^{2 \cdot (-0.5)} - 4^{-0.5} - 2 = -2.25 \rightarrow \left(-\frac{1}{2}, -2.25\right)$$

$$\left. \begin{array}{l} f'(-1) = (2 \cdot 4^{2 \cdot (-1)} - 4^{(-1)}) \ln 4 = -0.17 < 0 \\ f'(0) = (2 \cdot 4^{2 \cdot 0} - 4^0) \ln 4 = 1.38 > 0 \end{array} \right\} \left(-\frac{1}{2}, -2.25\right), \text{Min}$$

$$\left(-\frac{1}{2}, -2.25\right) :$$

$$f(x) = 4^{2x} - 4^x - 2, \quad g(x) = -2f(x)$$

$$f'(x) = 0, \quad g'(x) = 0$$

$$g(-0.5) = -2f(-0.5) = -2 \cdot (-2.25) = 4.5, \quad x = -0.5 \quad (1)$$

$$\left(-\frac{1}{2}, 4.5\right)$$

$$y = 4, \quad x \rightarrow -\infty, \quad x \quad (2)$$

$$y = k, \quad f(x)$$

$$4 = -2 \cdot k$$

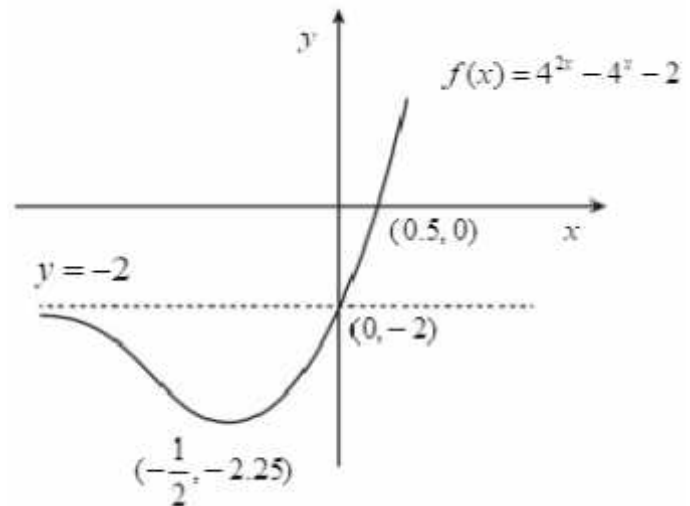
$$k = -2$$

$$f(-10) = 4^{2(-10)} - 4^{-10} - 2 = -2.0000009$$

$$f(10) = 4^{2 \cdot 10} - 4^{10} - 2 = +1.1 \cdot 10^{12} \rightarrow +\infty$$

$$y = -2, \quad f(x)$$

$$: f(x) \quad (3)$$



$$f(x) = \frac{2 \ln x + 3}{3}$$

(1)

 $x > 0$:

$$y = 0 \quad , \quad x = 0 \quad (2)$$

$$: y = 0 \quad x =$$

$$0 = \frac{2 \ln x + 3}{3}$$

$$0 = 2 \ln x + 3$$

$$\ln x = -1.5$$

$$x = e^{-1.5} \approx 0.223 \rightarrow (0.223, 0)$$

$$x = (0.223, 0) :$$

(3)

$$f(x) = \frac{2 \ln x + 3}{3} = \frac{1}{3} \cdot (2 \ln x + 3)$$

$$f'(x) = \frac{1}{3} \cdot \frac{2}{x}$$

$$\boxed{f'(x) = \frac{2}{3x}}$$

$$x > 0 :$$

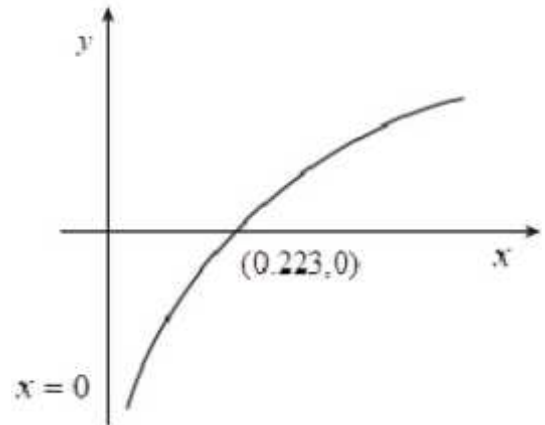
(4)

$$f(0.0000001) = -9.74 \rightarrow -\infty, \quad f(100,000) = 10.21 \rightarrow +\infty$$

$$x = 0$$

$$x = 0 :$$

$$f(x) = \frac{2 \ln x + 3}{3} \quad (5)$$



$$f'(x) = \frac{2}{3x}$$

$$, x > 0$$

$$f'(x) = \frac{2}{3x}$$

(1)

$$f'(0.001) = 666 \rightarrow +\infty, \quad f(100,000) = 6 \cdot 10^{-6} \rightarrow +0$$

$$x = 0$$

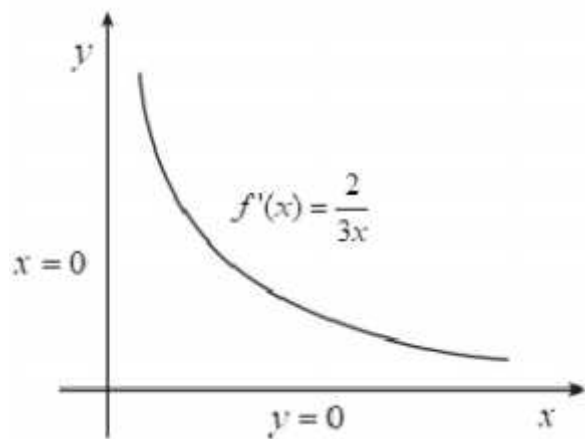
.((1)

(0)

$$y = 0$$

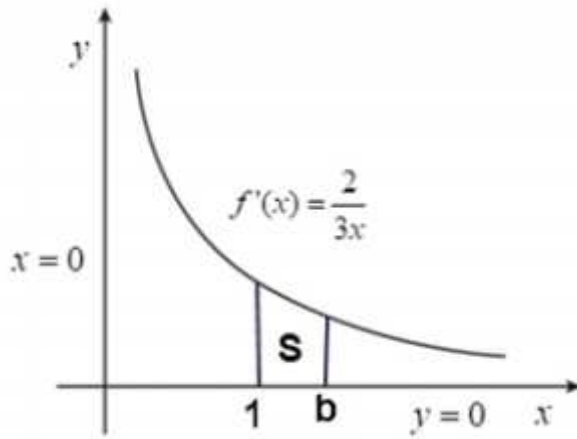
$$y = 0, x = 0 :$$

$$f'(x), f(x) \quad (2)$$



. $\ln 4$ -

, **S** -



$$S = \int_1^b (f'(x) - 0) dx$$

$$S = f(x) \Big|_1^b$$

$$S = f(b) - f(1)$$

$$x = b: f(b) = \frac{2\ln b + 3}{3}$$

$$x = 1: f(1) = \frac{2\ln 1 + 3}{3} = 1$$

$$S = \frac{2\ln b + 3}{3} - 1$$

$$\ln 4 = \frac{2\ln b + 3}{3} - 1$$

$$3\ln 4 = 2\ln b + 3 - 3$$

$$3\ln 4 = 2\ln b$$

$$1.5\ln 4 = \ln b$$

$$\ln 4^{1.5} = \ln b$$

$$\ln 8 = \ln b$$

$$\boxed{b = 8}$$

. $b = 8$: