

$$9\frac{1}{3}, \frac{1}{4}$$

$a_n$ , -

$$S = \frac{a_1}{1-q}, \quad -1 < q < 1$$

$$9\frac{1}{3} = \frac{a_1}{1-\frac{1}{4}}$$

$$9\frac{1}{3} \cdot \frac{3}{4} = a_1$$

$$\boxed{a_1 = 7}$$

$$a_1 = 7 :$$

$$q_b > 0$$

,(

$$) b_n > 0, b_n$$

$$b_3 = a_2, b_1 = a_1$$

$$b_1 q_b^2 = a_1 q_a$$

$$b_1 q_b^2 = b_1 \cdot \frac{1}{4} \quad /: b_1 \neq 0$$

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

$$\boxed{q_b = \frac{1}{2}} \quad \leftarrow q_b > 0$$

$$\frac{1}{2}$$

:

$$b_{19} = a_{10}, b_5 = a_3, \text{---} - b_5 = a_{10} \quad (\text{I})$$

, ( )

$$S_{\text{even } b} = \frac{1}{2} S_a \quad (\text{II})$$

$b_n$	$a_n$	
$b_2 = b_1 q_b = 7 \cdot \frac{1}{2} = 3.5$	$a_1 = 7$	A <sub>1</sub>
$\frac{b_{n+2}}{b_n} = \frac{b_n q_b^2}{a_n} = q_b^2 = \left(\frac{1}{2}\right)^2 = \frac{1}{4}$	$\frac{1}{2}$	Q
		N
$S_b = \frac{3.5}{1 - \frac{1}{4}} = 4\frac{2}{3}$	( ) $S_a = 9\frac{1}{3}$	S

$$\text{---} S_{\text{even } b} = \frac{1}{2} S_a -$$

•  $AC = 4\sqrt{2}$  ,  $AB = BC$  ,

•  $\sphericalangle C'BC$

$BCC'B'$

$\triangle ABC$

$(AC)^2 = (AB)^2 + (BC)^2$

$(4\sqrt{2})^2 = 2(BC)^2$

$16 = (BC)^2$

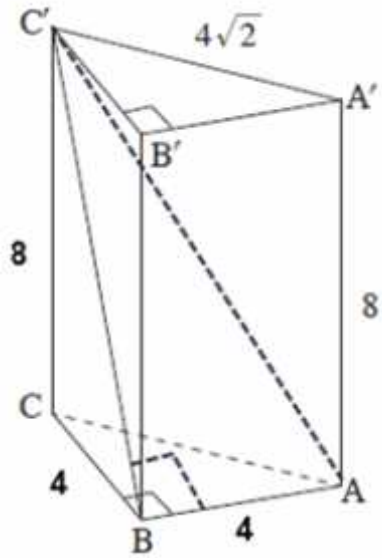
$\boxed{BC = AB = 4}$

$C'BC'$

$\tan \sphericalangle C'BC = \frac{C'C}{BC} = \frac{8}{4}$

$\boxed{\sphericalangle C'BC = 63.43^\circ}$

•  $63.43^\circ$



•  $(AB \perp BC$

$BCC'B'$

$AB) \sphericalangle ABC' = 90^\circ$  .

$\triangle BCC'$

$(BC')^2 = (BC)^2 + (CC')^2$

$(BC')^2 = 4^2 + 8^2 = 80$

$\boxed{BC' = 4\sqrt{5}}$

$AC'B$

$\tan \sphericalangle AC'B = \frac{AB}{BC'} = \frac{4}{4\sqrt{5}}$

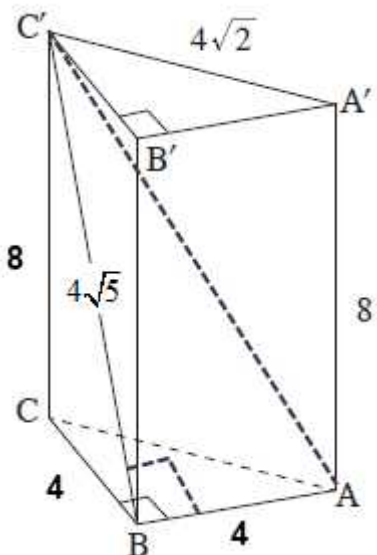
$\boxed{\sphericalangle AC'B = 24.09^\circ}$

•  $\sphericalangle AC'B = 24.09^\circ$  :

•  $AC'B$

•  $S_{\triangle AC'B} = \frac{AB \cdot BC'}{2} = \frac{4 \cdot 4\sqrt{5}}{2} = 8\sqrt{5}$

•  $S_{\triangle AC'B} = 8\sqrt{5}$  :



•  $BA = BC' = 4\sqrt{5}$  ,

,  $AB = BC$  - .

$BD = 4 : 2 = 2$

$\angle CBA' = 90^\circ$

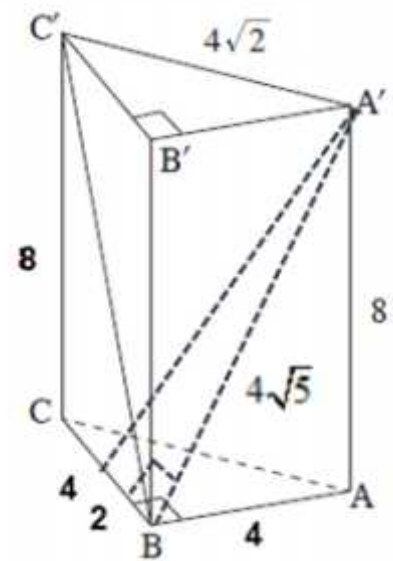
$\triangle BCA'$

$(A'D)^2 = (BD)^2 + (BA')^2$

$(A'D)^2 = 2^2 + (4\sqrt{5})^2$

$A'D = 2\sqrt{21}$

•  $A'D = 2\sqrt{21}$  :



$0 \leq x \leq f$

$f(x) = \sin 2x$

$f(0) = \sin(2 \cdot 0) = 0 \rightarrow (0, 0) : x = 0$

$y = \dots$  (1)

$: y = 0$

$x = \dots$

$\sin 2x = 0 = \sin 0$

$2x = 0 + 2fk \quad 2x = f + 2fk$

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

$x = 0, x = \frac{f}{2}, x = f$

$(0, 0), (\frac{f}{2}, 0), (f, 0) :$

(2)

$(0, 0), (f, 0) :$

( , , )

$f'(x) = 2 \cos 2x$

$0 = \cos 2x = \cos \frac{f}{2}$

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

$x = \frac{f}{4} + fk \quad x = -\frac{f}{4} + fk$

$k = 0 : (\frac{f}{4}, 1) \quad k = 1 : (\frac{3f}{4}, -1)$

( , , )

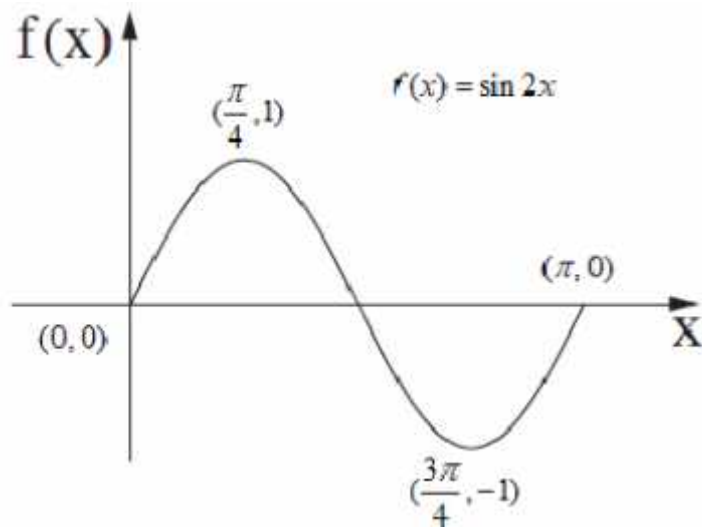
$x$	0		$\frac{f}{4}$		$\frac{3f}{4}$		$f$
$f(x)$	0		1		-1		0
$f'(x)$		+		-		+	
	Min	↗	Max	↘	Min	↗	Max

$(0, 0), (\frac{f}{4}, 1), (\frac{3f}{4}, -1), (f, 0) :$

$$0 \leq x \leq f$$

$$f(x) = \sin 2x$$

(3)



$$0 \leq x \leq f$$

$$g(x) = 2 \sin x$$

$$\sin 2x = 2 \sin x \cos x$$

$$2 \sin x \cos x - 2 \sin x = 0$$

$$2 \sin x (\cos x - 1) = 0$$

$$\sin x = 0 \quad \cos x = 1$$

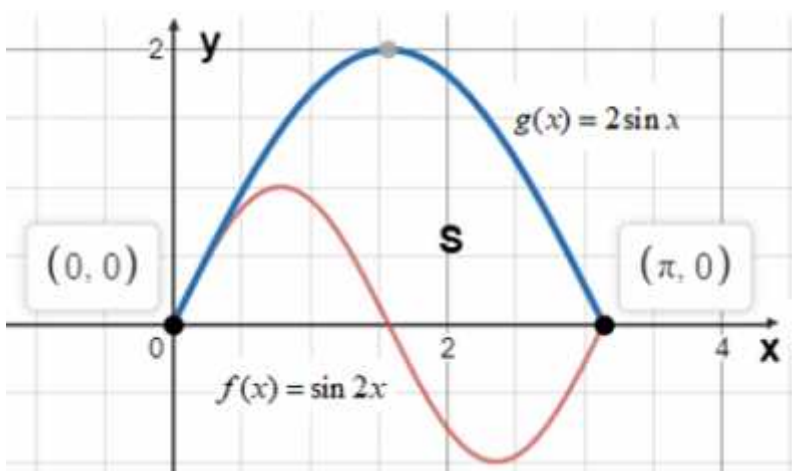
$$x = k\pi \quad x = 2k\pi$$

$$2x = 0 + 2k\pi \quad 2x = f + 2k\pi$$

$$k = 0: \boxed{(0, 0)} \quad k = 0: \boxed{(f, 0)}$$

$$x = 0, x = \frac{f}{2}, x = f$$

• (0, 0), (f, 0) :



$$S = \int_0^f (2 \sin x - \sin 2x) dx$$

$$S = \left[ -2 \cos x + \frac{\cos 2x}{2} \right]_0^f$$

$$x = f: 2$$

$$x = 0: -2$$

$$S = 2 - (-2)$$

$$\boxed{S = 4}$$

• " 4 :

$$f(x) = 9 - (\ln x)^2$$

(1)

$$x > 0$$

$$y = 0$$

x -

(2)

$$0 = 9 - (\ln x)^2$$

$$(\ln x)^2 = 9$$

$$\ln x = 3 \rightarrow x = e^3 \approx 20.09 \rightarrow (e^3, 0)$$

$$\ln x = -3 \rightarrow x = e^{-3} = \frac{1}{e^3} \approx 0.05 \rightarrow \left(\frac{1}{e^3}, 0\right)$$

$$x > 0$$

, y -

$$\left(\frac{1}{e^3}, 0\right), (e^3, 0) :$$

, f(x)

(3)

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

$$0 = \ln x$$

$$x = 1 \rightarrow y = 9 - (\ln 1)^2 = 9 \rightarrow (1, 9)$$

$$\left. \begin{array}{l} f'(0.5) = (-) \cdot \frac{(-)}{(+)} > 0 \\ f'(2) = (-) \cdot \frac{(+)}{(+)} < 0 \end{array} \right\} \text{max}$$

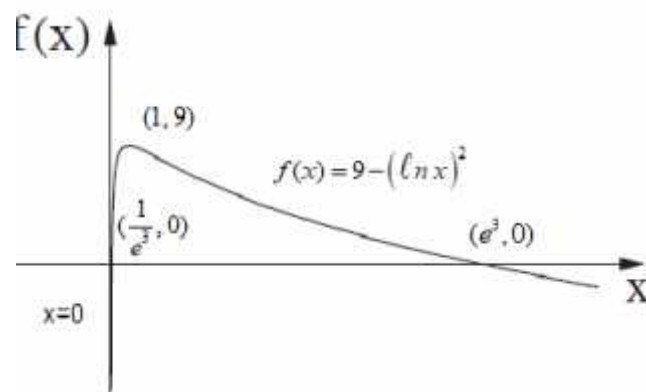
$$(1, 9) :$$

$$f(x) = 9 - (\ln x)^2$$

(4)

$$f(1000) = -38 \rightarrow -\infty, x \rightarrow +\infty$$

$$x = 0, f(0.001) = -76 \rightarrow -\infty, x \rightarrow 0$$



$$f'(x),$$

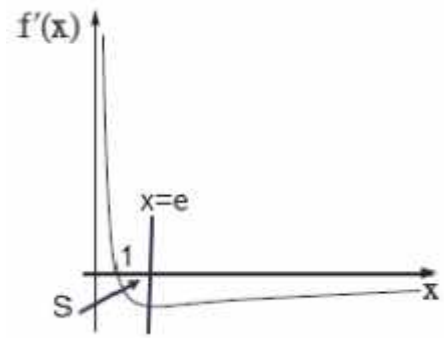
$$x=1$$

(3)

$$x=e$$

- )

(. ,



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

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

$$x=e: -(9 - (\ln e)^2) = -8$$

$$x=1: -9$$

$$S = -8 - (-9)$$

$$\boxed{S=1}$$

. " 1

:



-  $M_0$  ,  $M_t = M_0 \cdot q^t$  :

$t$   $M_t$  ,  $q$

( ) 4 - .

. "  $(\frac{1}{3})^{10}$  - "  $(\frac{1}{3})^2$  -

$$(\frac{1}{3})^{10} = (\frac{1}{3})^2 \cdot q^4 \quad /: (\frac{1}{3})^2$$

$$(\frac{1}{3})^8 = q^4$$

$$\sqrt[4]{(\frac{1}{3})^8} = q$$

$$(\frac{1}{3})^2 = q$$

$$\boxed{q = \frac{1}{9}}$$

,  $\frac{1}{9}$  - ,

.  $(\frac{1}{3})^2 \cdot 9 =$  " 1

$$(\frac{1}{3})^2 = M_0 \cdot (\frac{1}{9})^1 \quad /: (\frac{1}{9}) \rightarrow \boxed{M_0 = 1}$$
 ,

(. 9 ,  $\frac{8}{9}$  )  $\frac{1}{9}$  :

. " 1

$$g(x) = 3^{-2x}$$

$$g(x) = 3^{-2x} = (3^{-2})^x = \left(\frac{1}{9}\right)^x$$

$$g(0) = \left(\frac{1}{9}\right)^0 = 1 \rightarrow (0,1) : x=0 \quad y \quad (1)$$

$$x \quad , \quad g(x) = 3^{-2x} \quad (0,1) :$$

$$g(x) = 3^{-2x} \quad (2)$$

$$g'(x) = 3^{-2x} \cdot \ln 3 \cdot (-2)$$

$$g'(x) = (-2 \ln 3) \cdot 3^{-2x}$$

$$x \quad , \quad x \quad - \quad , \quad x \quad - \quad :$$

$$g(x) = 3^{-2x} \quad (3)$$

$$y=0 \quad , \quad g(10) = 2.8 \cdot 10^{-10} \rightarrow +0 \quad , \quad x \rightarrow +\infty$$

