

$$a_{n+1} = a_n - 4$$

$$d = -4$$

$$(n -)$$

$$a_{n+1} - a_n = -4 :$$

$$a_3 = 12$$

$$a_1 + 2d = 12$$

$$a_1 + 2 \cdot (-4) = 12$$

$$\boxed{a_1 = 20}$$

$$.20$$

$$71$$

$$(71 - 10 + 1 = 62) a_{62}$$

$$a_{62} = a_1 + (62 - 1) \cdot d$$

$$a_{62} = 20 + 61 \cdot (-4)$$

$$a_{62} = -224$$

$$S_{last\ 10} = \frac{10[2 \cdot (-224) + (10 - 1) \cdot (-4)]}{2}$$

$$S_{last\ 10} = 5[-448 - 36]$$

$$\boxed{S_{last\ 10} = -2,420}$$

$$.-2,420$$

$$10 :$$

$$\left(\frac{71+1}{2} = 36\right) a_{36}$$

$$71$$

$$a_{36} = a_1 + (36 - 1) \cdot d$$

$$a_{36} = 20 + 35 \cdot (-4)$$

$$\boxed{a_{36} = -120}$$

$$.-120$$

:

ABC

$CT = \frac{7}{2} = 3.5$, $\angle CAT = \frac{54^\circ}{2} = 27^\circ$:

, ΔABC -

AT

ΔATC

$$\sin 27^\circ = \frac{TC}{AC}$$

$$AC = \frac{3.5}{\sin 27^\circ}$$

AC = " 7.709

AC

, A'C

, $\angle A'CA = 65^\circ$

A'C

$\Delta A'CA$

$$\tan 65^\circ = \frac{A'A}{AC}$$

$$7.709 \tan 65^\circ = A'A$$

A'A = " 16.53

$7.709 \cdot 16.53 = "$ 127.45 : ACC'A'

" 127.45

ACC'A'

:

, ΔABC ,

$\Delta CA'B$

, (. .) $\Delta ACA' \cong \Delta ABA'$

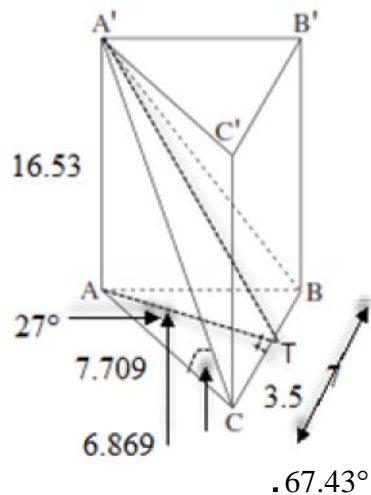
A'T

AT

, A'T

, $\angle A'TA$

A'T



$\Delta A'TA$

$$\tan \angle A'TA = \frac{A'A}{AT}$$

$$\tan \angle A'TA = \frac{16.53}{6.869}$$

$$\angle A'TA = 67.43^\circ$$

ΔATC

$$\tan 27^\circ = \frac{TC}{AT}$$

$$AT = \frac{3.5}{\tan 27^\circ}$$

AT = " 6.869

A'T

:

"

$-f \leq x \leq f$

$f(x) = 3 - \sin^2 x - \cos x$

$f(-f) = 3 - \sin^2(-f) - \cos(-f) = 4 \rightarrow \boxed{(-f, 4)}$

$f(f) = 3 - \sin^2(f) - \cos(f) = 4 \rightarrow \boxed{(f, 4)}$

$f'(x) = -2 \sin x \cos x + \sin x$

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

$\sin x = 0 \quad \cos x = 0.5 = \cos \frac{f}{3}$

$\boxed{x = f k}$

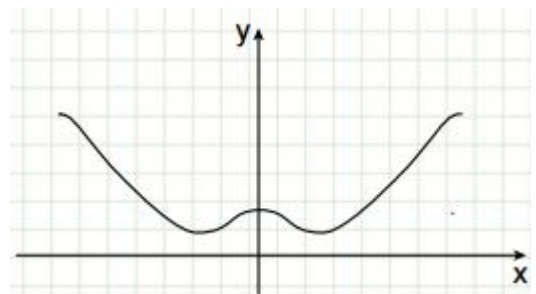
$\boxed{x = \frac{f}{3} + 2f k}$

$\boxed{x = -\frac{f}{3} + 2f k}$

$(-\frac{f}{3}, 1.75), (\frac{f}{3}, 1.75), (0, 2)$

x	$-f$		$-\frac{f}{3}$		0		$\frac{f}{3}$		f
$f(x)$	4		1.75		2		1.75		4
	Max	↘	Min	↗	Max	↘	Min	↗	Max

$(\frac{f}{3}, 1.75), (-\frac{f}{3}, 1.75), (f, 4), (0, 2), (-f, 4)$



$$0 \leq x \leq f$$

(1)

$$f'(x) \quad - \frac{f}{3} < x < f \quad , \quad f(x)$$

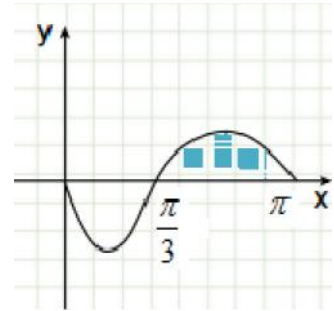
$$f'(x) \quad - 0 < x < \frac{f}{3} \quad , \quad f(x)$$

:

$$f'(0) = -2 \sin 0 \cos 0 + \sin 0 = 0 \rightarrow (0, 0)$$

$$f'(f) = -2 \sin f \cos f + \sin f = 0 \rightarrow (f, 0)$$

(2)



(2)

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

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

$$\left. \begin{array}{l} x=f: f(f)=4 \\ x=\frac{f}{3}: f(\frac{f}{3})=1.75 \end{array} \right\} S = 4 - 1.75 = 2.25$$

" 2.25 :

$g(x) = e^{3-x}$, $f(x) = e^x$

:

$y = 0$ - $f(10) = 22026 \rightarrow +\infty$, $f(-10) = 4.5 \cdot 10^{-5} \rightarrow 0$

$y = 0$ - $g(10) = 9.1 \cdot 10^{-4} \rightarrow 0$, $g(-10) = 442413 \rightarrow \infty$

e , x -

$f(0) = e^0 = 1 \rightarrow (0,1)$, $f(3) = e^3 \rightarrow (3, e^3)$

$(0, e^3)$ - $g(x)$, $(0,1)$ - $f(x)$: y -

:

x , $f'(x) = e^x > 0$

x , $g'(x) = -e^{3-x} < 0$

x , x $g(x)$ x , x $f(x)$:

(1)

$e^x = e^{3-x}$

$x = 3 - x$

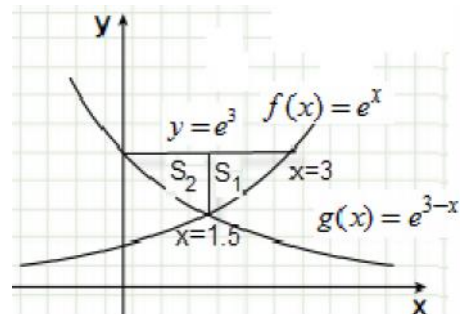
$x = 1.5 \rightarrow (1.5, e^{1.5})$

$(1.5, e^{1.5})$:

(3)

$y = e^3$

(2)



$y = e^3$

(3)

$e^x = e^3 \rightarrow x = 3 \rightarrow (3, e^3)$

$e^{3-x} = e^3 \rightarrow x = 0 \rightarrow (0, e^3)$

"

$$S_2 = \int_{1.5}^3 (e^3 - e^{3-x}) dx$$

$$S_2 = (e^3 x + e^{3-x}) \Big|_0^{1.5}$$

$$\left. \begin{array}{l} x=1.5: 1.5e^3 + e^{1.5} \\ x=0: e^3 \end{array} \right\} S_2 = 0.5e^3 + e^{1.5}$$

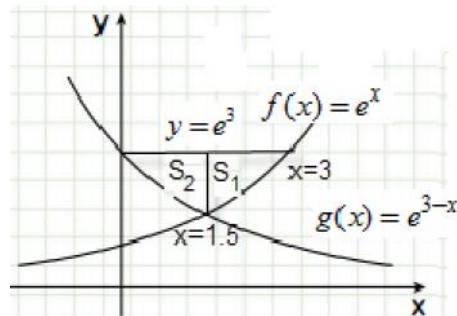
$$S_1 = \int_{1.5}^3 (e^3 - e^x) dx$$

$$S_1 = (e^3 x - e^x) \Big|_{1.5}^3$$

$$\left. \begin{array}{l} x=3: 3e^3 - e^3 = 2e^3 \\ x=1.5: 1.5e^3 - e^{1.5} \end{array} \right\} S_1 = 0.5e^3 + e^{1.5}$$

$$S_1 + S_2 = e^3 + 2e^{1.5} :$$

$$" \quad e^3 + 2e^{1.5} \approx 29.05 :$$



$$f(x) = x^m - \ln x^4$$

$$\ln - :$$

$$x \neq 0 \quad x^4 > 0$$

$$x \neq 0 :$$

$$x = 1$$

$$f'(1) = 0 ,$$

$$f'(x) = mx^{m-1} - \frac{4x^3}{x^4}$$

$$0 = m \cdot 1^{m-1} - \frac{4 \cdot 1^3}{1^4}$$

$$0 = m - 4$$

$$\boxed{m = 4}$$

$$m = 4 :$$

$$f(x) = x^4 - \ln x^4$$

$$m = 4$$

() ,

x	$f(x)$		
0.00001	46.05		$f(x)$
-0.00001	46.05		$x = 0$
10,000	10^{16}	$f(x) \rightarrow +\infty$	$x \rightarrow +\infty$
-10,000	10^{16}	$f(x) \rightarrow +\infty$	$x \rightarrow -\infty$

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

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

$$f'(x) = \frac{4x^4 - 4}{x}$$

$$\frac{4x^4 - 4}{x} = 0$$

$$4x^4 - 4 = 0$$

$$4(x^4 - 1) = 0$$

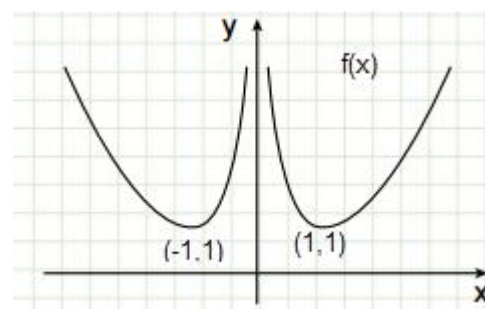
$$x = 1 \rightarrow f(1) = 1^4 - \ln 1^4 = 1 \rightarrow (1, 1)$$

$$x = -1 \rightarrow f(-1) = (-1)^4 - \ln(-1)^4 = 1 \rightarrow (-1, 1)$$

$$\left. \begin{array}{l} f'(0.5) = \frac{4 \cdot 0.5^4 - 4}{0.5} < 0 \\ f'(2) = \frac{4 \cdot 2^4 - 4}{2} > 0 \end{array} \right\} (1, 1), \text{min}$$

$$\left. \begin{array}{l} f'(-2) = \frac{4 \cdot (-2)^4 - 4}{-2} < 0 \\ f'(-0.5) = \frac{4 \cdot (-0.5)^4 - 4}{-0.5} > 0 \end{array} \right\} (-1, 1), \text{min}$$

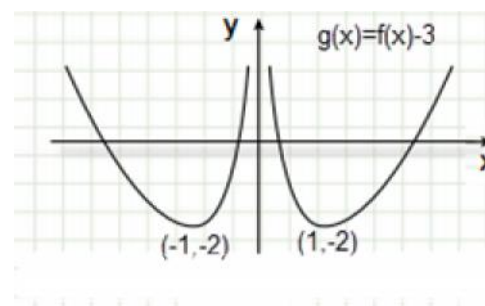
$(-1, 1), (1, 1):$



$f(x)$

3 -

$$g(x) = f(x) - 3$$



$x -$

$$g(x) = f(x) - 3$$

:

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