

3, 5, 7, ...,  $a_n$

$$d = 2, a_1 = 3$$

$$a_n = 3 + 2(n-1) = 2n + 1$$

$$6(2n + 1) = 12n + 6$$

$$12n + 6$$

$n -$

(1)

$$S_n = \frac{n(a_1 + a_n)}{2}$$

$$S_n = \frac{n(3 + 2n + 1)}{2}$$

$$S_n = \frac{n(2n + 4)}{2}$$

$$S_n = n(n + 2)$$

$$S_n = n^2 + 2n$$

$$n^2 + 2n$$

$n -$

:

6 -

(2)

$$n^2 + 2n + 6 = 12n + 6 :$$

$$n^2 + 2n + 6 = 12n + 6$$

$$n^2 - 10n = 0$$

$$n(10 - n) = 0$$

$$n = 10 \leftarrow n > 0$$

10

:

$AC = BC = a,$

$(AB \perp BC$

$BCC'B'$

$AB$

$), \angle ABC' = 90^\circ$

$, AC'$

$BCC'B'$

$BC \angle AC'B = r$

$\Delta ABC$

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

$AC = a\sqrt{2}$

$\Delta ACC'$

$\tan r = \frac{AB}{BC'}$

$BC = \frac{a}{\tan r}$

$\Delta BCC'$

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

$(\frac{a}{\tan r})^2 = a^2 + (CC')^2 \rightarrow \frac{a^2}{\tan^2 r} - a^2 = (CC')^2$

$a^2(\frac{1 - \tan^2 r}{\tan^2 r}) = (CC')^2 \rightarrow CC' = \frac{a}{\tan r} \sqrt{1 - \tan^2 r}$

$S = \frac{AB \cdot BC}{2} = \frac{a \cdot a}{2} = \frac{a^2}{2} :$

$V = \frac{a^2}{2} \cdot \frac{a}{\tan r} \sqrt{1 - \tan^2 r} = \frac{a^3}{2 \tan r} \sqrt{1 - \tan^2 r} :$

$\frac{a^3}{2 \tan r} \sqrt{1 - \tan^2 r} :$

$2a$

$2a = \frac{a}{\tan r} \sqrt{1 - \tan^2 r} \quad /: a > 0$

$2 \tan r = \sqrt{1 - \tan^2 r}$

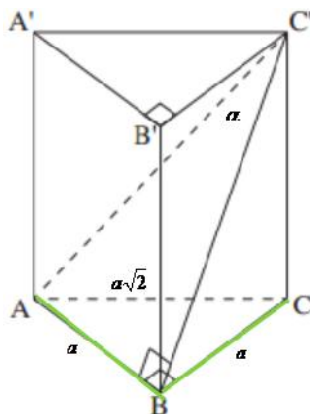
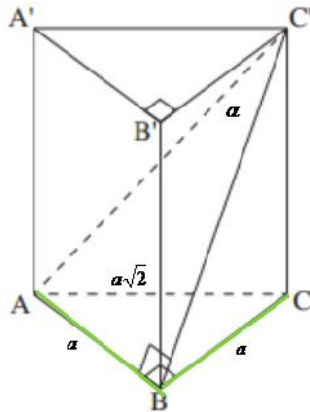
$4 \tan^2 r = 1 - \tan^2 r$

$5 \tan^2 r = 1$

$\tan^2 r = 0.2 \rightarrow \tan r = +\sqrt{0.2} \rightarrow 2 \cdot 0.2 = \sqrt{1 - 0.2^2} \rightarrow 0.4 = 0.4 \quad o.k.$

$r = 24.09^\circ \leftarrow 0 < r < 45^\circ$

$r = 24.09^\circ :$



AC'

ABC

AC  $\angle C'AC = s$

ACC'

$$\tan S = \frac{CC'}{AC}$$

$$\tan S = \frac{2a}{a\sqrt{2}}$$

$$\boxed{S = 54.74^\circ} \quad 0 < S < 90^\circ$$

54.74°

ABC

AC'

:

$0 \leq x \leq f$   $f(x) = a - b \sin(2x)$

$(\frac{f}{12}, 0)$  ,  $x$  -

$0 = a - b \sin(2 \cdot \frac{f}{12})$

$0 = a - b \cdot \frac{1}{2}$

$b = 2a$

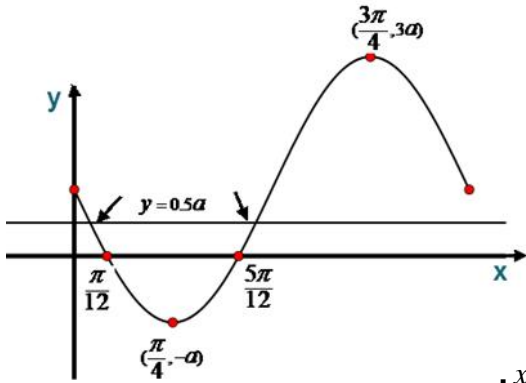
$b = 2a$  :

$f(x) = a - 2a \sin(2x)$  :  $b = 2a$

$(0, a)$   $x = 0$   $y$  -

$y = 0$   $x$  -

(1)



$0 = a - 2a \sin 2x \quad / : a > 0$

$0 = 1 - 2 \sin 2x$

$\sin 2x = 0.5 = \sin \frac{f}{6}$

$2x = \frac{f}{6} + 2fk \quad 2x = \frac{5f}{6} + 2fk$

$x = \frac{f}{12} + fk \quad x = \frac{5f}{12} + fk$

$x = \frac{5f}{12}, x = \frac{f}{12} \quad 0 \leq x \leq f$

$(\frac{5f}{12}, 0), (\frac{f}{12}, 0), (0, a)$  :

$(f, a), (0, a) \quad 0 \leq x \leq f$  (2)

$f'(x) = -4a \cos 2x$

$0 = \cos 2x$

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

$x = \frac{f}{4} + \frac{f}{2}k$

$(\frac{f}{4}, -a)$

$x = \frac{f}{4}, x = \frac{3f}{4} \quad 0 \leq x \leq f$

$(\frac{3f}{4}, 3a)$

$(\frac{3f}{4}, 3a),$

$(\frac{f}{4}, -a) :$

$y = 0.5a \quad f(x)$

$f(x) = 0.5a$

( )  $f(x) = (3e^x - 3)^2$  .

,  $f(-10) = 8.999 \rightarrow +9$ ,  $f(10) = 4366090291 \rightarrow +\infty$  :

.  $x \rightarrow -\infty$   $y = 9$

( )  $f(x) = (3e^x - 3)^2$  .

,  $f(-10) = 8.999 \rightarrow +9$ ,  $f(10) = 4366090291 \rightarrow +\infty$  :

.  $x \rightarrow -\infty$   $y = 9$

.  $x$  : (1)

. (0,0)  $x = 0$   $y$  - (2)

.  $y = 0$   $x$  -

$0 = (3e^x - 3)^2$

$0 = 3e^x - 3$

$e^x = 1 \rightarrow x = 0 \rightarrow (0,0)$

. ( 0 - ) (0,0) :

(3)

$f'(x) = 3(3e^x - 3) \cdot 3e^x$

$f'(x) = 9e^x(3e^x - 3)$

$0 = 3e^x - 3$

$e^x = 1 \rightarrow x = 0 \rightarrow (0,0)$

. ( 0 - ) (0,0) :

.  $y = 9$

$9 = (3e^x - 3)^2$

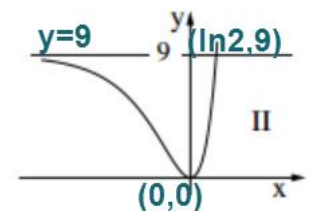
$3 = 3e^x - 3 \quad -3 = 3e^x - 3$

$e^x = 2 \quad e^x = 0 \rightarrow \emptyset$

$x = \ln 2 \rightarrow (\ln 2, 9)$

.  $(\ln 2, 9)$  :

. II .



,  $x = \ln 2 > 0$   $y = 9$

(2) . (0,0) (1) :

$y = 9$  (3)

. II :

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

$$x \neq 1.5 \quad 2x-3 \neq 0 :$$

$$x \neq 1.5 :$$

( , )

$$y=0 : , f(-100) = 9.8 \cdot 10^{-3} \rightarrow +0, f(100) = -0.01 \rightarrow +0$$

$$x=1.5 : , f(1.499) = 1000 \rightarrow +\infty, f(1.5001) = -10,000 \rightarrow -\infty$$

$$f'(x) = \frac{+2 \cdot 2}{(2x-3)^2} > 0$$

$$x : , x < 1.5 \quad x > 1.5 :$$

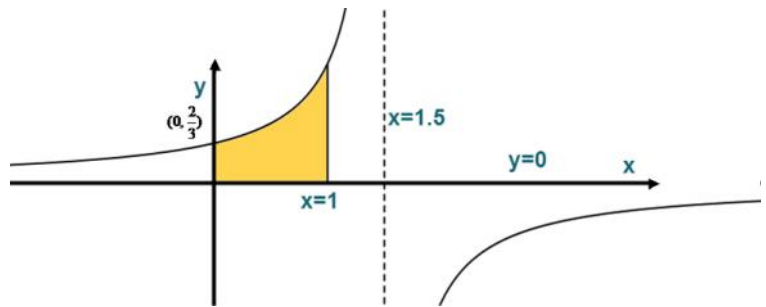
$$x = 1.5 , \quad y = 0 :$$

$$(0, \frac{2}{3})$$

$$x = 0 \quad y -$$

$$, x -$$

$$(0, \frac{2}{3}) :$$



$$S = \int_0^1 \left( \frac{-2}{2x-3} \right) dx$$

$$S = \frac{-2 \ln|2x-3|}{2} \Big|_0^1$$

$$S = (-\ln|2 \cdot 1 - 3|) - (-\ln|2 \cdot 0 - 3|)$$

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

$$\boxed{S = \ln 3}$$

$$. \ln 3 :$$

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

$$.t \quad M_t , \quad q$$

. 80% - , 20% - 10

$$. 10 - 0.6M_0 - M_0 -$$

$$0.8M_0 = M_0 \cdot q^{10} \quad /: M_0$$

$$0.8 = q^{10}$$

$$q = \sqrt[10]{0.8}$$

$$\boxed{q = 0.9779}$$

, 40% - , ,

. 60% -

$$0.6M_0 = M_0 \cdot 0.9779^t \quad /: M_0$$

$$0.6 = 0.9779^t$$

$$\ln 0.6 = \ln 0.9779^t$$

$$\ln 0.6 = t \ln 0.9779$$

$$\frac{\ln 0.6}{\ln 0.9779} = t$$

$$\boxed{t = 22.89}$$

. 22.89