

$$80 : 5 = 16$$

, 80

5

80%

20%

()

- x

$$80\%x = 16 :$$

:

$$0.8x = 16 \quad / : 0.8$$

$$\boxed{x = 20}$$

20

:

$$\cdot 130\% \cdot 20 = \frac{130}{100} \cdot 20 = 1.3 \cdot 20 = 26$$

, 30%

- n

$20n$	20	n		
80	16	5		
$26(n-5)$	26	$n-5$		

· 190 ()

$$20n + 190 = 80 + 26(n - 5) :$$

:

$$20n + 190 = 80 + 26(n - 5)$$

$$20n + 190 = 80 + 26n - 130$$

$$-6n = -240 \quad / : (-6)$$

$$\boxed{n = 40}$$

40

:

$$\frac{1}{6}$$

(1) .

$$(6 - 4) \cdot 3 =$$

$$P(4 \cup 6) = \frac{1}{6} + \frac{1}{6} = \frac{1}{3}$$

$$\cdot \frac{1}{3}$$

:

$$P(2 \cup 4 \cup 6) = 3 \cdot \frac{1}{6} = \frac{1}{2}$$

(2)

$$P(4 \cup 5 \cup 6) = 3 \cdot \frac{1}{6} = \frac{1}{2}$$

$$\frac{1}{3}$$

"3 -

"

,

$$(P(A) \cdot P(A) \neq P(A \cap B))$$

$$\frac{1}{2} \cdot \frac{1}{2} = \frac{1}{4}$$

.

:

,

3

"3 -

"

(1)

$$p = \frac{1}{3}$$

,

$$k = 2, n = 3, p = \frac{1}{3}$$

,

$$P_3(2) = \binom{3}{2} \left(\frac{1}{3}\right)^2 \left(1 - \frac{1}{3}\right)^{3-2} = \frac{3!}{2!(3-2)!} \cdot \left(\frac{1}{3}\right)^2 \cdot \left(\frac{2}{3}\right)^1 = 3 \cdot \left(\frac{1}{3}\right)^2 \cdot \frac{2}{3} = \frac{2}{9}$$

$$\cdot \frac{2}{9}$$

:

$$\frac{1}{3} \cdot \frac{2}{3} \cdot \frac{1}{3} = \frac{2}{27}$$

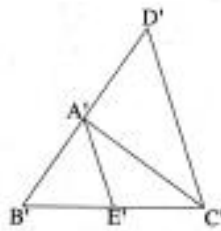
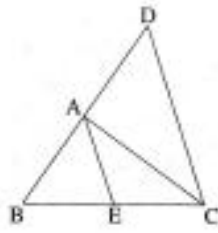
$$\cdot \frac{2}{27}$$

:

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

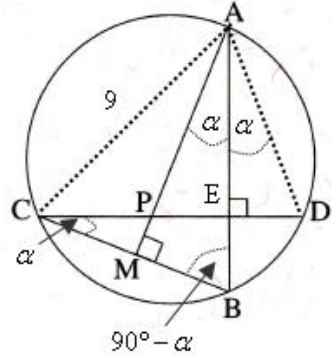
$$\frac{1}{9}$$

:



- $B'E' = C'E'$.2 $BE = CE$.1
- $AC = A'C'$.4 $BA = B'A'$.3
- $AE = A'E'$.5
- $B'A' = A'D'$.7 $BA = AD$.6
- $AE \parallel DC$. : "
- $\triangle ADC \cong \triangle A'D'C'$.
- $\triangle ABC \cong \triangle A'B'C'$.

	$BA = AD$	8	6
	$BE = CE$	9	1
	$\triangle BDC$ AE	10	9,8
	$AE \parallel DC$	11	10
. . .			
	$B'A' = A'D'$	12	7
	$B'E' = C'E'$	13	2
	$\triangle B'D'C'$ AE	14	13,12
	$AE \parallel DC$	15	15
	$AE = A'E'$	16	5
2 -	$2AE = 2A'E'$	17	16
	$2AE = DC$	18	11
	$2A'E' = D'C'$	19	14
	() $DC = D'C'$	20	19,17,16
	() $AC = A'C'$	21	4
	$BA = B'A'$	22	3
	() $AD = A'D'$	23	22,12,8
	$\triangle ADC \cong \triangle A'D'C'$	24	23,21,20
. . .			
	$\sphericalangle DAC = \sphericalangle D'A'C'$	25	24
	() $\sphericalangle BAC = \sphericalangle B'A'C'$	26	25
	$\triangle ABC \cong \triangle A'B'C'$	27	25,26,21
. . .			



$AB \perp CD$.1

$AM \perp CB$.2

.4 . AC = " 9 .3: ' .

ΔAPD . $\sphericalangle DCB = \sphericalangle MAB$. : "

. ΔPCM .

	$\sphericalangle AMB = 90^\circ$	5	1
	$\sphericalangle MAB = r$	6	
180°	ΔABM	$\sphericalangle ABM = 90^\circ - r$	7 6,5
	$\sphericalangle AEC = 90^\circ$	8	1
180°	ΔDEC	$\sphericalangle DCB = r$	9 8,7
	$\sphericalangle DCB = \sphericalangle MAB$	10	9,6
. . .			
	(\widehat{BD})	$\sphericalangle BAD = \sphericalangle DCB$	11
		$\sphericalangle BAD = \sphericalangle MAB$	12 11,6
"	(AE)	ΔAPD	13 12,8
(2) . . .			

ΔPCM

:

() " 5

ΔACB :

() AC = " 9

ΔACB

$$\frac{AC}{\sin \sphericalangle ABC} = 2R$$

$$\frac{9}{\sin \sphericalangle ABC} = 2 \cdot 5$$

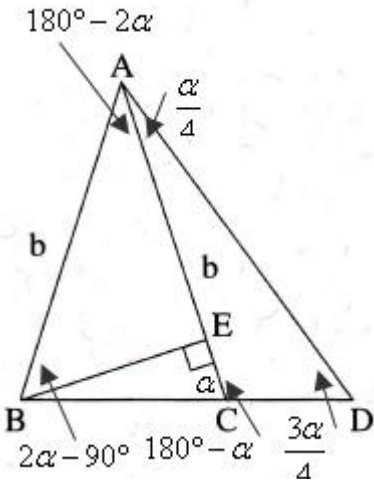
$$0.9 = \sin \sphericalangle ABC$$

$$\sphericalangle ABC = 64.16^\circ \leftarrow 0 < \sphericalangle ABC < 90^\circ$$

() $\sphericalangle PMC = 90^\circ$ (180° ΔEBC) $\sphericalangle MCP = 25.84^\circ$

(180° ΔPCM) $\sphericalangle CPM = 64.16^\circ$

$\sphericalangle PMC = 90^\circ$, $\sphericalangle CPM = 64.16^\circ$, $\sphericalangle MCP = 25.84^\circ$, :



() $\angle CAD = \frac{r}{4}$.

() $\angle ACB = r$

$\triangle ACD$ - () $\angle D = \frac{3r}{4}$

($180^\circ -$) $\angle ACD = 180^\circ - r$

:

$\triangle ACD$
 $\frac{AD}{\sin \angle ACD} = \frac{AC}{\sin \angle D}$
 $\frac{AD}{\sin (180^\circ - r)} = \frac{b}{\sin \frac{3r}{4}}$

$AD = \frac{b \sin r}{\sin \frac{3r}{4}} \leftarrow \sin x = \sin(180^\circ - x)$

($AB = AC$) $\triangle ACD$) $AB = b$

(r , 180° $\triangle ABC$) $\angle CAB = 180^\circ - 2r$

$\triangle ABE$

$\sin \angle EAB = \frac{BE}{AB}$

$b \sin 2r = BE$

$\frac{AD}{BE} = \frac{\frac{b \sin r}{\sin \frac{3r}{4}}}{b \sin 2r}$

$\frac{AD}{BE} = \frac{b \sin r}{2b \sin r \cos r \sin \frac{3r}{4}} \leftarrow \sin 2x = 2 \sin x \cos x$

$\frac{AD}{BE} = \frac{1}{2 \cos r \sin \frac{3r}{4}}$
--

$\frac{AD}{BE} = \frac{1}{2 \cos r \sin \frac{3r}{4}}$:

$$\sphericalangle ABE = r - (90^\circ - r) = 2r - 90^\circ$$

$$\frac{S_{\triangle ACD}}{S_{\triangle ABE}} = \frac{\cancel{0.5} \cdot AD \cdot \cancel{AC} \cdot \sin \sphericalangle DAC}{\cancel{0.5} \cdot BE \cdot \cancel{AB} \cdot \sin \sphericalangle ABE}$$

$$\frac{S_{\triangle ACD}}{S_{\triangle ABE}} = \frac{1}{2 \cos r \sin \frac{3r}{4}} \cdot \frac{\sin \frac{r}{4}}{\sin(2r - 90^\circ)}$$

$\frac{S_{\triangle ACD}}{S_{\triangle ABE}} = - \frac{\sin \frac{r}{4}}{2 \cos r \sin \frac{3r}{4} \cos 2r}$

$$\leftarrow \sin(2r - 90^\circ) = -\sin((90^\circ - 2r)) = -\cos 2r$$

$$\frac{S_{\triangle ACD}}{S_{\triangle ABE}} = - \frac{\sin \frac{r}{4}}{2 \cos r \sin \frac{3r}{4} \cos 2r} :$$

$g(x) = \sin(bx) - f(x) = -x^2 + 2x$

k	$x = \frac{f}{b}k$
0	0
1	$\frac{f}{b}$

$x_A = \frac{f}{b} A$

x -

$0 = \sin(bx)$

$bx = f k$

$x = \frac{f}{b} k$

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

$\frac{2f}{b}$

"

) $x_A = \frac{f}{b} :$

$S_g = \int_0^{\frac{f}{b}} (\sin(bx) - 0) dx$

$S_g = \left[\frac{-\cos(bx)}{b} \right]_0^{\frac{f}{b}}$

$S_g = \left(\frac{-\cos(b \cdot \frac{f}{b})}{b} \right) - \left(\frac{-\cos(b \cdot 0)}{b} \right)$

$S_g = \frac{1}{b} + \frac{1}{b}$

$S_g = \frac{2}{b}$

$f(x) = -x^2 + 2x = -x(x-2)$

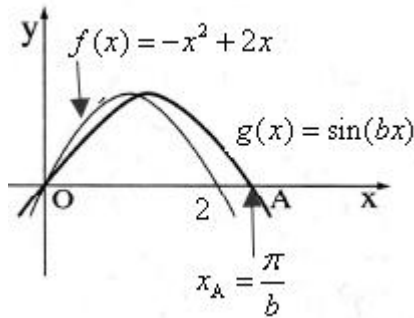
$x = 2 \quad x = 0 \quad x -$

$S_f = \int_0^2 (-x^2 + 2x - 0) dx$

$S_f = \left[-\frac{x^3}{3} + \frac{2x^2}{2} \right]_0^2$

$S_f = \left(-\frac{2^3}{3} + 2^2 \right) - \left(-\frac{0^3}{3} + 0^2 \right)$

$S_f = 1\frac{1}{3}$



$\frac{2}{b} = 1\frac{1}{3}$

$b = 1.5$

.b = 1.5 :

$$a, f(x) = \sqrt{x+2} + \sqrt{-x} + 2$$

$$\left. \begin{array}{l} x+2 \geq 0 \rightarrow x \geq -2 \\ -x \geq 0 \rightarrow x \leq 0 \end{array} \right\} -2 \leq x \leq 0$$

$$-2 \leq x \leq 0 :$$

$$f(-2) = \sqrt{-2+2} + \sqrt{-(-2)} + 2 = 2 + \sqrt{2} \rightarrow (-2, 2 + \sqrt{2})$$

$$f(0) = \sqrt{0+2} + \sqrt{-(-0)} + 2 = 2 + \sqrt{2} \rightarrow (0, 2 + \sqrt{2})$$

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

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

$$0 = \sqrt{-x} - \sqrt{x+2}$$

$$\sqrt{x+2} = \sqrt{-x}$$

$$x+2 = -x$$

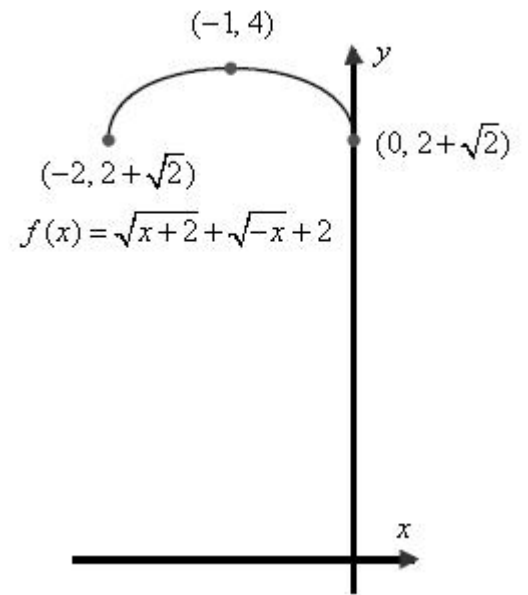
$$2x = -2$$

$$x = -1 \rightarrow \sqrt{-1+2} = \sqrt{-(-1)} \rightarrow 1 = 1 \text{ o.k.}$$

$$f(-1) = \sqrt{-1+2} + \sqrt{-(-1)} + 2 = 4 \rightarrow (-1, 4)$$

x	-2		-1		0
$f(x)$	$2 + \sqrt{2}$		4		$2 + \sqrt{2}$
$f'(x)$					
	Min	↗	Max	↘	Min

$$(-1, 4), (-2, 2 + \sqrt{2}), (0, 2 + \sqrt{2}) :$$



$$y = 2 + \sqrt{2}$$

$$, 2 + \sqrt{2} - ,$$

$$y -$$

$$y = 2 + \sqrt{2} :$$

$$, 2 + \sqrt{2} \leq k < 4 ,$$

$$f(x) = k$$

$$y = k$$

$$2 + \sqrt{2} \leq k < 4 :$$

$$, x \neq 0.5a, f(x) = \frac{1}{(x-2)^2} + a$$

$$. x = 2 \quad (x-2)^2$$

(1)

(0)

$$x \rightarrow \infty \quad 0 - \quad \frac{1}{(x-2)^2}$$

$$y = a - x \rightarrow \infty \quad f(x) \rightarrow a$$

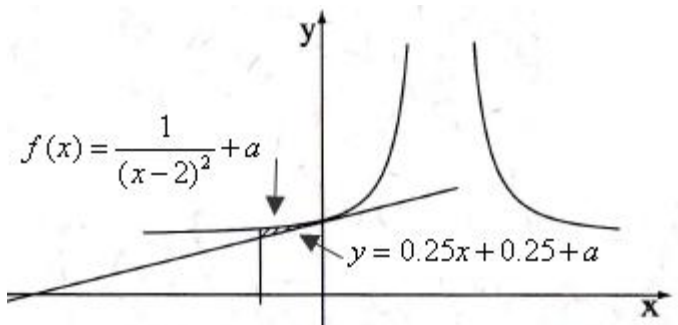
$$. \lim_{x \rightarrow 2} \frac{1}{(x-2)^2} = \frac{1}{0^\pm} = \pm\infty$$

$$x = 2, x = 2$$

$$. x = 2, y = a, x \neq 2 :$$

$$. x = 0 \quad y -$$

(1)



$$f(0) = \frac{1}{(0-2)^2} + a \rightarrow \boxed{y_{x=0} = 0.25 + a}$$

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

$$f'(0) = \frac{-2 \cdot (0-2)}{(0-2)^2} = 1 \rightarrow m = 0.25$$

$$y - (0.25 + a) = 0.25(x - 0)$$

$$\boxed{y = 0.25x + 0.25 + a}$$

$$, y_{x=0} = 0.25 + a :$$

(2)

S_1	
$f(x) = \frac{1}{(x-2)^2} + a$	
$y = 0.25x + 0.25 + a$	
$x = 0$	x
$x = -1$	x

$$S_1 = \int_{-1}^0 \left(\frac{1}{(x-2)^2} + a - (0.25x + 0.25 + a) \right) dx$$

$$S = \int_{-1}^0 \left(\frac{1}{(x-2)^2} - 0.25x - 0.25 \right) dx$$

$$S = \left[-\frac{1}{x-2} - \frac{0.25x^2}{2} - 0.25x \right]_{-1}^0$$

$$S = \left(-\frac{1}{0-2} - \frac{0.25 \cdot 0^2}{2} - 0.25 \cdot 0 \right) - \left(-\frac{1}{-1-2} - \frac{0.25 \cdot (-1)^2}{2} - 0.25 \cdot (-1) \right)$$

$$S = 0.5 - \frac{11}{24}$$

$$\boxed{S = \frac{1}{24}}$$

$$. " \frac{1}{24} :$$