

.(")

2x - .

:

s - "	v - "	t -	
3x	2x	1.5	
300 - 3x	x	$\frac{300 - 3x}{x}$	
300	2x - 25	$\frac{300}{2x - 25}$	

$$1.5 + \frac{300 - 3x}{x} = \frac{300}{2x - 25} + 0.5$$

$$1 + \frac{300 - 3x}{x} = \frac{300}{2x - 25}$$

$$x(2x - 25) + (300 - 3x)(2x - 25) = 300x$$

$$-4x^2 + 350x - 7500 = 0$$

$$x = 50, \quad x = 37.5$$

" 100

, x = 50

.(" 60 -) " 75

" 75

, x = 37.5

.(" 60 -) " 50

. " 75

:

" 12.5

. t = 0.5

$$, 100t = 75t + 12.5$$

t

" 12.5

$$, (25 \cdot 1.5 = 37.5)$$

" 37.5

. " 12.5

- , " 25

2.5

, t = 1

$$, 50t + 25 = 75t$$

, " 12.5

:

"

$$\cdot a_4 + a_8 + a_{12} + a_{16} = 224 \quad \cdot$$

$$a_1 + 3d + a_1 + 7d + a_1 + 11d + a_1 + 15d = 224$$

$$4a_1 + 36d = 224$$

$$a_1 + 9d = 56$$

$$a_{10} = 56$$

$$S_{19} = \frac{19 \cdot (2a_1 + 18d)}{2}$$

$$S_{19} = 19 \cdot (a_1 + 9d)$$

$$S_{19} = 19 \cdot 56$$

$$\boxed{S_{19} = 1,064}$$

$$\cdot S_{19} = 1,064 \quad \cdot$$

$$S_n = n \cdot a_n \quad \cdot$$

$$S_{10} = 10 \cdot a_{10}$$

$$S_{10} = 10 \cdot 56$$

$$S_{10} = 560$$

$$560 = \frac{10 \cdot (2a_1 + 9d)}{2}$$

$$112 = 2 \cdot (56 - 9d) + 9d$$

$$112 = 112 - 18d + 9d$$

$$\boxed{d = 0}$$

· :
· :

· 56 -

· 56

:

· :

$$\cdot b_{n+1} - b_n = a_n + S_n \quad \cdot$$

$$b_{n+1} - b_n = 56 + n \cdot a_n$$

$$b_{n+1} - b_n = 56 + n \cdot 56$$

$$b_{n+1} - b_n = 56 \cdot (1 + n)$$

$$(b_2 - b_1) + (b_3 - b_2) + (b_4 - b_3) + \dots + (b_{20} - b_{19}) =$$

$$56 \cdot (1 + 1) + 56 \cdot (1 + 2) + 56 \cdot (1 + 3) + \dots + 56 \cdot (1 + 19) =$$

$$56 \cdot (2 + 3 + 4 + \dots + 20) =$$

$$56 \cdot \left(\frac{19 \cdot (2 + 20)}{2} \right) = \boxed{11,704}$$

· 11,704

:

"

- C

- B

- A

- \bar{D}

- D

$$P(C) = 0.4, P(B) = 0.4, P(A) = 0.2$$

$$P(D) = 0.7 \rightarrow P(\bar{D}) = 0.3$$

$$P(\bar{D}/B) = \frac{1}{8} \rightarrow P(D/B) = \frac{7}{8}$$

$$P(C \cap D) = 2.5P(A \cap D) \rightarrow P(A \cap D) = x, P(C \cap D) = 2.5x$$

$$P(\bar{D}/B) = \frac{P(\bar{D} \cap B)}{P(B)}$$

$$\frac{1}{8} = \frac{P(\bar{D} \cap B)}{0.4}$$

$$P(\bar{D} \cap B) = 0.05 \rightarrow P(D \cap B) = 0.4 - 0.05 = 0.35$$

$$x + 0.35 + 2.5x = 0.7 \rightarrow x = 0.1 :$$

	C	B	A	
0.7	$2.5x = 0.25$	0.35	$x = 0.1$	D
0.3	0.15	0.05	0.1	\bar{D}
1	0.4	0.4	0.2	

$$P(\bar{C}/\bar{D}) = \frac{P(\bar{C} \cap \bar{D})}{P(\bar{D})} = \frac{0.1 + 0.05}{0.3} = 0.5$$

. 0.5

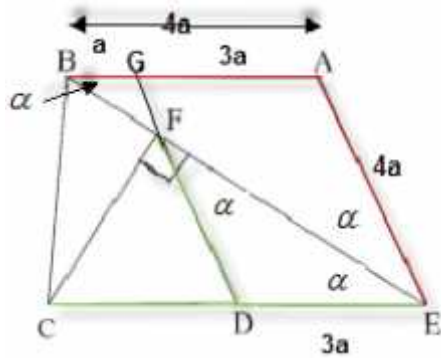
$$P(\bar{B}/D) = \frac{P(\bar{B} \cap D)}{P(D)} = \frac{0.1 + 0.25}{0.7} = 0.5 \text{ (1)}$$

. 0.5

$$0.5^5 = \frac{1}{32}$$

$$1 - \frac{1}{32} = \frac{31}{32}$$

"



CD = DE .3

CF ⊥ BE .2

AB || EC

ABCE .1

ED = 3a .6

EA = 4a .5

∠CEB = ∠AEB .4

$S_{\Delta EAB} = s$.7 :

$\Delta EAB \sim \Delta EDF$. : "

$S_{\Delta CEF}$.

$S_{\Delta BFG}$.

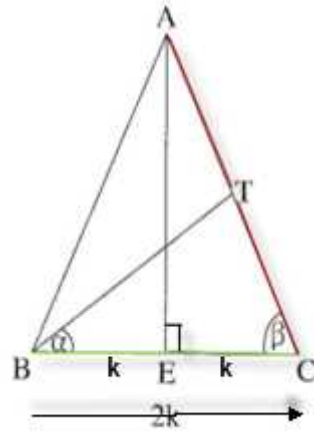
	AB EC	8	1
	CF ⊥ BE	9	2
	CD = DE	10	3
ΔCFE	FD = DE = CD	11	10, 9
+ ΔDFE "	∠CEB = ∠EFD = r	12	11
	() ∠ABE = ∠CEB = r	13	12, 8
	() ∠CEB = ∠AEB = r	14	12, 4
	ΔEAB ~ ΔEDF	15	14, 13
. . .			
	EA = 4a	16	5
	ED = 3a	17	6
,	$\frac{EA}{ED} = \frac{4}{3}$	18	17, 16, 15
	$\frac{S_{\Delta EAB}}{S_{\Delta EDF}} = \frac{16}{9}$	19	18, 15
	$S_{\Delta EAB} = s$	20	7
	$S_{\Delta EDF} = \frac{9}{16}s$	21	20, 19
ΔCFE	$S_{\Delta CEF} = \frac{9}{8}s$	22	21, 11
. . .			

	$\sphericalangle AEB = \sphericalangle EFD = r$	23	14 ,12
	$AE \parallel DG$	24	23
	$GAED$	25	24 ,8
	$GA = 3a$	26	25 ,17
	$AB = 4a$	27	18 ,16 ,15
	$BG = a$	28	27 ,26
	() $\sphericalangle GFB = \sphericalangle EFD$	29	
	$\triangle BGF \sim \triangle EDF$	30	29 ,13
,	$\frac{BG}{ED} = \frac{1}{3}$	31	30 ,28 ,17
	$\frac{S_{\triangle BGF}}{S_{\triangle EDF}} = \frac{1}{9}$	32	30,31
	$S_{\triangle BGF} = \frac{1}{16} S$	33	32 ,21
. . .			

, $AT = TC = \frac{AC}{2}$, $BC = 2k$, $\sphericalangle TBC = r$, $\sphericalangle ACB = s$, $(AB = AC)$ $\triangle ABC$.

. $EB = EC = k$, " . AE

$\triangle AEC$ (1)



$$\cos S = \frac{EC}{AC}$$

$$AC = \frac{k}{\cos S}$$

$$TC = \frac{k}{2 \cos S} \leftarrow AT = TC = \frac{AC}{2}$$

$$. TC = \frac{k}{2 \cos S} :$$

$\triangle BTC$ (2)

$$\frac{TC}{\sin r} = \frac{BC}{\sin(180^\circ - (r + s))}$$

$$TC = \frac{2k \sin r}{\sin(r + s)}$$

$$\frac{2 \cancel{k} \sin r}{\sin(r + s)} = \frac{\cancel{k}}{2 \cos S}$$

$$\sin(r + s) = 4 \sin r \cos S$$

. :

$$. k = " 4 , TE = " 5 :$$

$$) TC = " 5 (1)$$

$$TC = \frac{k}{2 \cos S}$$

$$5 = \frac{4}{2 \cos S}$$

$$S = 66.42^\circ$$

$$. S = 66.42^\circ :$$

$$\sin(r + s) = 4 \sin r \cos S (2)$$

$$\sin(r + 66.42^\circ) = 4 \sin r \cos 66.42^\circ$$

$$\sin r \cos 66.42^\circ + \cos r \sin 66.42^\circ = 4 \sin r \cos 66.42^\circ$$

$$\cos r \sin 66.42^\circ = 3 \sin r \cos 66.42^\circ \quad \because \cos r \neq 0$$

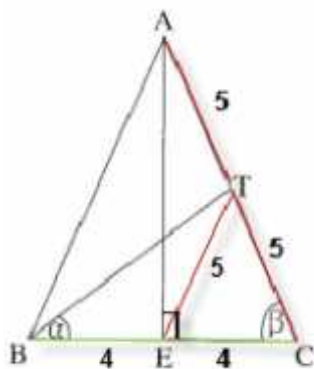
$$\frac{\tan 66.42^\circ}{3} = \tan r$$

$$r = 37.37^\circ$$

$$. r = 37.37^\circ :$$

"

$\triangle AEC$



$$-\frac{f}{2} \leq x \leq 0, f(x) = x^2 - \sin 2x$$

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

:

$$m(-\frac{f}{2}) = f'(-\frac{f}{2}) = 2 \cdot (-\frac{f}{2}) - 2 \cos(2 \cdot (-\frac{f}{2})) = -1.14$$

$$m(0) = f'(0) = 2 \cdot 0 - 2 \cos(2 \cdot 0) = -2$$

$$m' = f''(x) = 2 + 4 \sin 2x :$$

$$2 + 4 \sin 2x = 0$$

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

$$2x = -\frac{f}{6} + 2fk \quad 2x = \frac{7f}{6} + 2fk$$

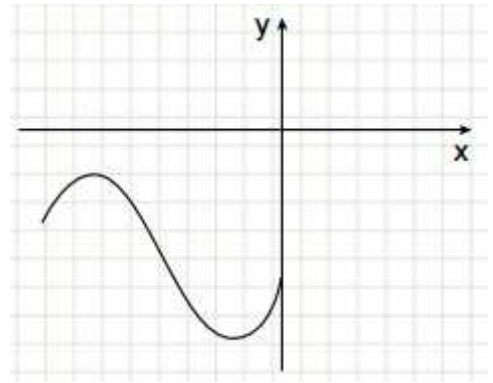
$$x = -\frac{f}{12} + fk \quad x = \frac{7f}{12} + fk$$

$$k = 0 \quad k = -1$$

$$(-\frac{f}{12}, -2.256) \quad (-\frac{5f}{12}, -0.866)$$

$-\frac{f}{2}$		$-\frac{5f}{12}$		$-\frac{f}{12}$		0	x
-1.14		-0.866		-2.256		-2	$m = f'(x)$
Min	↘	Max	↘	Min	↘	Max	

$$-2.256, -0.866 :$$



$f''(x)$ I $f'(x)$ (1)

(\cup) $f(x)$, $-\frac{f}{12} < x < 0$ $-\frac{f}{2} < x < -\frac{5f}{12}$

(\cap) $f(x)$, $-\frac{7f}{12} < x < -\frac{f}{12}$

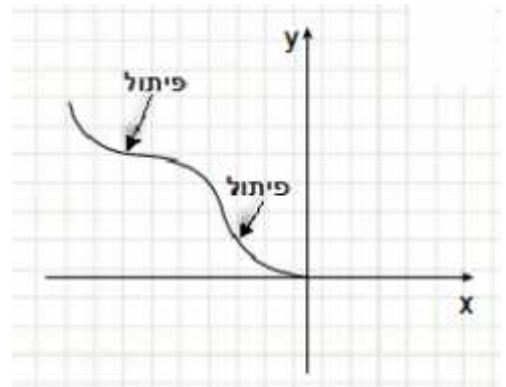
$-\frac{f}{12} < x < 0$ $-\frac{f}{2} < x < -\frac{5f}{12}$ (\cup) $f(x)$:

$-\frac{7f}{12} < x < -\frac{f}{12}$ (\cap) $f(x)$

$-\frac{f}{2} \leq x \leq 0$ (2)

$(-\frac{f}{2}, 2.467)$, $(0,0)$, $f(x)$

:



.($a > 0$) $f(x) = \frac{ax^3 + 2ax}{\sqrt{x^4 + 4x^2 + 4}}$.

$$f(x) = a \cdot \frac{x^3 + 2x}{\sqrt{(x^2 + 2)^2}}$$

$$f(x) = a \frac{x(x^2 + 2)}{x^2 + 2}$$

$$\boxed{f(x) = ax}$$

.($a > 0$)

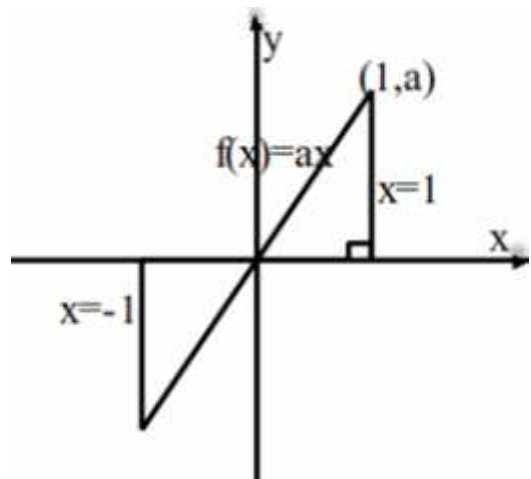
, $x^2 + 2 > 0 \quad \sqrt{(x^2 + 2)^2} = x^2 + 2$ -

. x **(1)**

. $f(-x) = -ax = -f(x)$ - **(2)**

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

(3)



$$2 = \frac{1 \cdot a}{2} \rightarrow \boxed{a = 4}$$

. $a = 4$:

. $f(x) = g'(x)$.

. $x = 0$

$g(x) - f(x)$

, $g(0) = f(0) = 0$ **(1)**

$$g(x) = \int f(x) dx = \int 4x dx$$

$$g(x) = 2x^2 + c$$

. $g(x) = 2x^2$, $g(0) = 0$

. :

.($0 < x < 2$)

. $2x(2-x) > 0 \quad 4x > 2x^2$ **(2)**

. $0 < x < 2$:

"

$n > 1, x \neq 0, f(x) = (1 + \frac{1}{x})^n$

$x = 0, x = 0$
 $y = 1, 1^n = 1, 1 - x \rightarrow \infty$

$y = 1, x = 0 :$

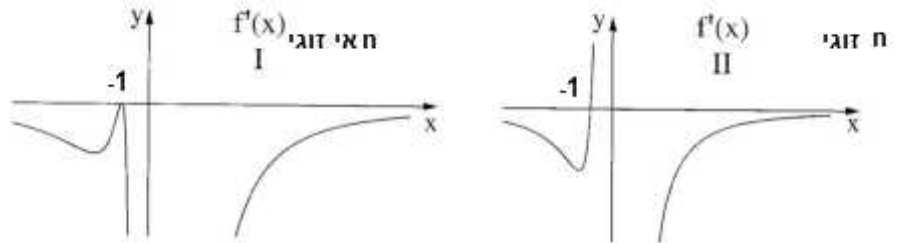
$f'(x) = n(1 + \frac{1}{x})^{n-1}(-\frac{1}{x^2})$

$n > 1, x \neq 0 (-\frac{1}{x^2})$

$x = -1, (1 + \frac{1}{x})^{n-1}, n-1, n$

$n, f'(x) \leq 0 :$

$n, , n, ,$



$x < 0, x > 0, f(x) - (1)$

:

$x = -1, x = -1 (2)$

$f'(x) :$

$f''(x)$

$f(x)$

:

$x = -1, f(x) - (1)$

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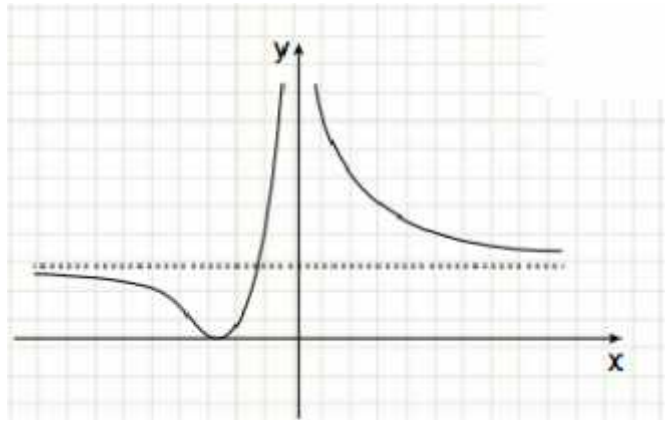
:

$x - (2)$

:

"

(3)



$(n) h(x) = (1 + \frac{1}{x})^4$, $(n) g(x) = (1 + \frac{1}{x})^3$.
 $g''(x) \cdot h''(x) \quad x > 0$

$g''(x)$, $n -$, $g'(x) : x > 0$
 $h''(x)$, $n -$, $h'(x) : x > 0$
 $g''(x) \cdot h''(x)$

· :
· :