

( " )  
 ( " )  
 x -  
 x + 20  
 :

s - "	v - "	t -		
240	x	$\frac{240}{x}$		,
150	x + 20	$\frac{150}{x + 20}$		

, B ,

$$\frac{240}{x} - 1.5 > \frac{150}{x + 20} : , ,$$

$$\frac{240}{x} - 1.5 > \frac{150}{x + 20} \quad / \cdot x(x + 20) > 0$$

$$240(x + 20) - 1.5x(x + 20) > 150x$$

$$-1.5x^2 + 60x + 4800 > 0$$

$$x_{1,2} = \frac{-60 \pm 180}{-3} \quad x = -40, 80$$

$$x > 0 - , ,$$

$$0 < x < 80$$

. " 80 - " 0 :

$$. x = 80 \quad , \frac{240}{x} - 1.5 = \frac{150}{x + 20} \quad x = 80$$

. " 100 " 80

$$, 1150 : 100 = 1.5 \quad B - C ,$$

$$80 \cdot 2.5 = " 200 \quad A - 2.5$$

. B - , A - " 200 :

$$a_n = 6^n + (-1)^{n+1} \quad n$$

$$\frac{a_n}{7} \quad "$$

$$n=1 \quad .1$$

$$\frac{a_1}{7} = \frac{6^1 + (-1)^{1+1}}{7} = \frac{6+1}{7} = 1$$

$$n=1$$

$$, ( \quad ) \quad n=k \quad .2$$

$$\frac{a_k}{7} :$$

$$\frac{a_{k+1}}{7} \quad " \quad , n=k+1 \quad .3$$

$$\begin{aligned} \frac{a_{k+1}}{7} &= \\ &= \frac{6^{k+1} + (-1)^{k+1+1}}{7} = \\ &= \frac{6 \cdot 6^k + (-1)(-1)^{k+1}}{7} = \\ &= \frac{6(6^k + (-1)^{k+1})}{7} - \frac{\cancel{7} \cdot (-1)^{k+1}}{\cancel{7}} \\ &= 6 \cdot \frac{a_k}{7} - (-1)^{k+1} \end{aligned}$$

$$, \quad - \quad , \quad -$$

$$6 \cdot \frac{a_k}{7} - (-1)^{k+1}$$

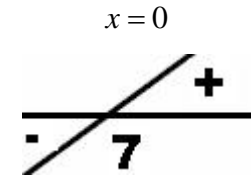
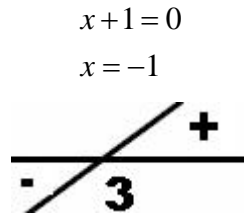
$$, n=1 \quad .4$$

$$, n=k$$

$$n=k+1$$

$$. \quad n \quad , \quad - \quad ,$$

$$|x+1|+|x|<4 : -$$



$x -$   
:  $|x+1|+|x|<4 -$

$x < -1$	$-1 \leq x \leq 0$	$x > 0$
$-x-1$ $-x$	$x+1$ $-x$	$x+1$ $x$
$-x-1-x < 4$ $-2x < 5 \quad /: (-2)$ $x > -2.5$	$x+1-x < 4$ $1 < 4$ $\Omega$	$x+1+x < 4$ $2x < 3 \quad /: 2$ $x < 1.5$
$x > -2.5 \cap x < -1$ <span style="border: 1px solid black; padding: 2px;"><math>-2.5 &lt; x &lt; -1</math></span>	$\Omega \cap -1 \leq x \leq 0$ <span style="border: 1px solid black; padding: 2px;"><math>-1 \leq x \leq 0</math></span>	$x > 0 \cap x < 1.5$ <span style="border: 1px solid black; padding: 2px;"><math>0 &lt; x &lt; 1.5</math></span>

$$-2.5 < x < 1.5$$

$$-2.5 < x < 1.5 :$$

$0 \leq x \leq 2f$

,  $a > \sqrt{2}$  ,  $f(x) = \cos^2 x - a^2 \cos x$

$y = 0$   $x =$  (1)

$0 = \cos^2 x - a^2 \cos x$

$0 = \cos x(\cos x - a^2)$

$\cos x = 0$   $\cos x = a^2$

$x = \frac{f}{2} + f k$   $\emptyset \leftarrow -1 \leq \cos x \leq 1, a^2 > 2$

$k = 0 \rightarrow x = \frac{f}{2} \rightarrow (\frac{f}{2}, 0)$

$k = 1 \rightarrow x = \frac{3f}{2} \rightarrow (\frac{3f}{2}, 0)$

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

(2)

$f(0) = \cos^2 0 - a^2 \cos 0 = 1 - a^2 \rightarrow (0, 1 - a^2)$

$f(2f) = \cos^2 2f - a^2 \cos 2f = 1 - a^2 \rightarrow (2f, 1 - a^2)$

$f(x) = \cos^2 x - a^2 \cos x$

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

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

$\sin = 0$   $\cos x = \frac{a^2}{2}$

$x = f k$   $\emptyset \leftarrow -1 \leq \cos x \leq 1, a^2 > 2$

$k = 0 \rightarrow x = 0$  edge

$k = 1 \rightarrow x = f \rightarrow f(f) = \cos^2 f - a^2 \cos f = 1 + a^2 \rightarrow (f, 1 + a^2)$

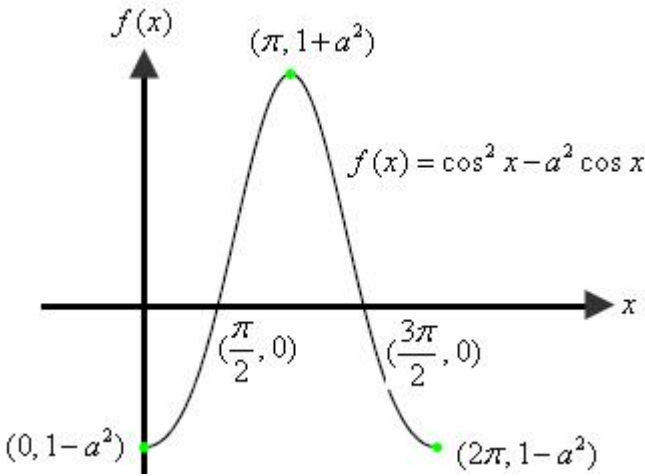
$k = 2 \rightarrow x = 2f$  edge

( )

0		f		2f	x
1 - a <sup>2</sup>		1 + a <sup>2</sup>		1 - a <sup>2</sup>	f(x)
	+	0	-		f'(x)
min	↖	max	↘	min	

$(f, 1 + a^2)$   $(2f, 1 - a^2), (0, 1 - a^2) :$

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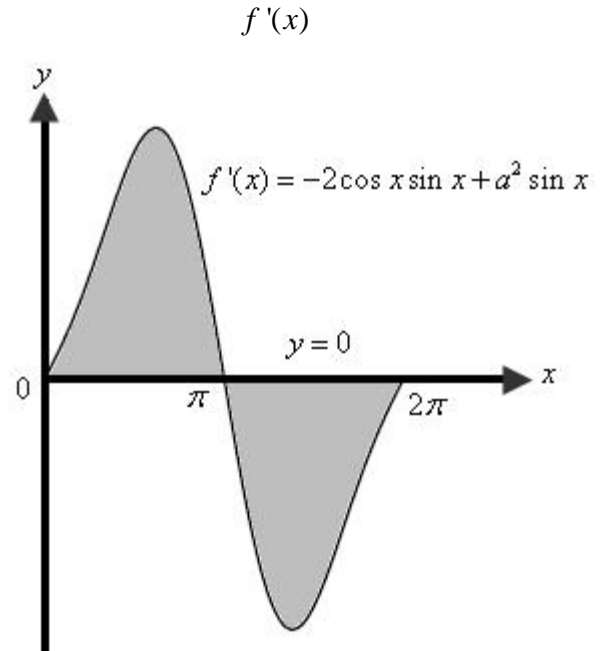
(3)

$$0 < x < f \quad f'(x) > 0 \quad f < x < 2f \quad f'(x) < 0$$

$$(3) \quad f'(x)$$

(1)

$$(2) \quad f'(0) = f'(f) = f'(2f) = 0 :$$



:

(2)

$$S = \int_0^f (-2 \cos x \sin x + a^2 \sin x) dx + \int_f^{2f} (0 - (-2 \cos x \sin x + a^2 \sin x)) dx$$

$$S = (\cos^2 x - a^2 \cos x) \Big|_0^f + (-\cos^2 x + a^2 \cos x) \Big|_f^{2f}$$

$$S = (\cos^2 f - a^2 \cos f) - (\cos^2 0 - a^2 \cos 0) + (-\cos^2 2f + a^2 \cos 2f) - (-\cos^2 f + a^2 \cos f)$$

$$S = (1 + a^2) - (1 - a^2) + (-1 + a^2) - (-1 - a^2)$$

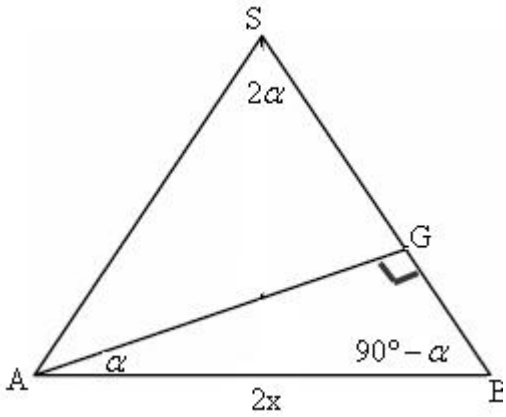
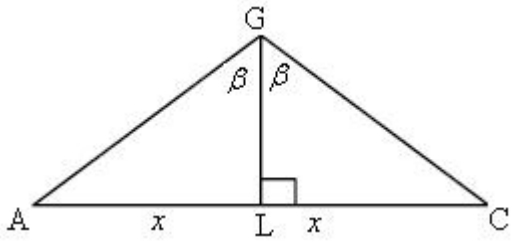
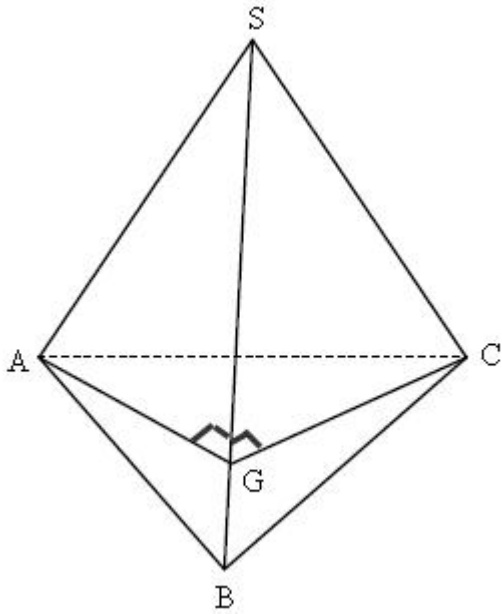
$$S = 4a^2$$

$$a > 0 \rightarrow \boxed{a=2} \quad 4a^2 = 16 :$$

$$a = 2 :$$

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G  
 .( . . . . ΔAGB ≅ ΔCGB )  
 ,SBC SAB  
 SB - AG ∠AGC  
 SB - CG SAB  
 .ΔAGC SBC

GL 2x -  
 ΔAGC -

ΔSLC  
 $\sin S = \frac{x}{AG}$   
 $AG = \frac{x}{\sin S}$

$\angle S = 2r \rightarrow \angle SBA = 90^\circ - r \rightarrow \angle BAG = r$

ΔAGB  
 $\cos r = \frac{AG}{2x}$   
 $\cos r = \frac{\frac{x}{\sin S}}{2x}$

$\sin S = \frac{1}{2 \cos r}$

$\sin S = \frac{1}{2 \cos r} :$

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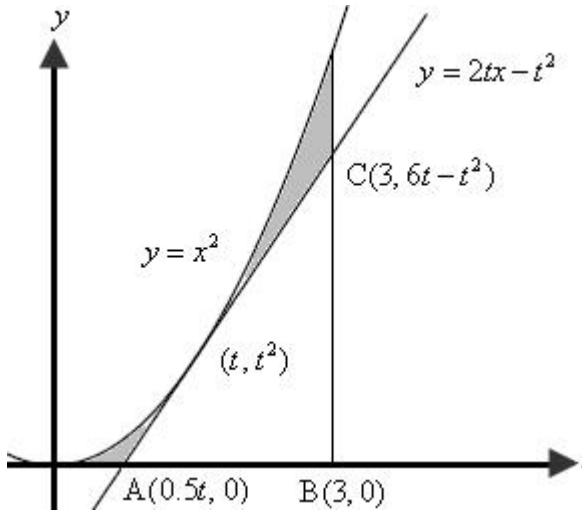
ABC

$$2r = 60^\circ \rightarrow r = 30^\circ$$

$$\sin S = \frac{1}{2 \cos 30^\circ} \rightarrow \boxed{S = 35.26^\circ} \leftarrow r < 90^\circ :$$

$$S = 35.26^\circ :$$

נימוני הטח האפור )



$(t, t^2)$

t -

:

$y' = 2x \rightarrow m = 2t$

$y - t^2 = 2t(x - t) \rightarrow \boxed{y = 2tx - t^2}$  :

$S = \int_0^3 x^2 dx - S_{\Delta ABC}$  :

$0 = 2tx - t^2 \rightarrow x = 0.5t \rightarrow A(0.5t, 0) : A$

$B(3, 0) : B$

$y = 2t \cdot 3 - t^2 \rightarrow y = 6t - t^2 \rightarrow C(3, 6t - t^2) : C$

$S_{\Delta ABC} = \frac{(3 - 0.5t)(6t - t^2)}{2} = 0.25t^3 - 3t^2 + 9t$

$\int_0^3 x^2 dx = \frac{x^3}{3} \Big|_0^3 = \frac{3^3}{3} - \frac{0^3}{3} = 9$

:

$S = 9 - (0.25t^3 - 3t^2 + 9t)$

$\boxed{S = -0.25t^3 + 3t^2 - 9t + 9}$

$\boxed{S' = -0.75t^2 + 6t - 9}$

$0 = -0.75t^2 + 6t - 9 \rightarrow t_{1,2} = \frac{-6 \pm 3}{-1.5} \rightarrow \boxed{t = 2} \leftarrow 0 < t < 3$

$\boxed{S'' = -1.5t + 6} \rightarrow S''(2) = -1.5 \cdot 2 + 6 > 0 \rightarrow \text{min}$

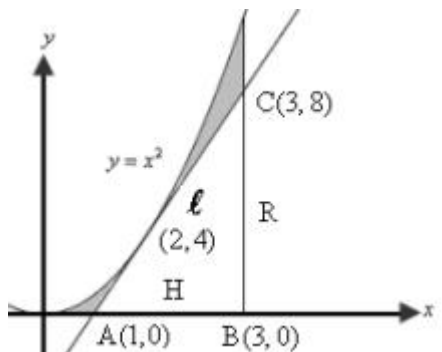
$S(2) = -0.25 \cdot 2^3 + 3 \cdot 2^2 - 9 \cdot 2 + 9 = 1$

1

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( $\sphericalangle B = 90^\circ$ )  $\Delta ABC$

, x -



:

- AC , - AB , - BC

$\cdot R = y_C = 6 \cdot 2 - 2^2 = 8$

. 8

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