

.( ) ( " ) x - .

$$, \frac{100+20}{100} \cdot x = 1.2x , \quad 1.2x$$

.70-30 = " 40

" 30

.x+3

(t) (v) (s) - s = vt

:

s - "	v - "	t -		
2x	x	2		
-	-	0.5		
30-2x	1.2x	$\frac{30-2x}{1.2x}$		
40	x+3	$\frac{40}{x+3}$		

.( ) , 2.5

$$\frac{40}{x+3} + 2.5 = 2 + 0.5 + \frac{30-2x}{1.2x} :$$

:

$$\frac{40}{x+3} + 2.5 = 2 + 0.5 + \frac{30-2x}{1.2x}$$

$$\frac{40}{x+3} = \frac{30-2x}{1.2x}$$

$$48x = (x+3)(30-2x)$$

$$2x^2 + 24x - 90 = 0$$

$$\boxed{x=3} \text{ o.k. } \cancel{x=-30} \leftarrow x > 0$$

. " 3 ( ) :

. 40 - 6 , "  $\frac{40}{6} = 6\frac{2}{3}$  - , " 6 , " 40 .

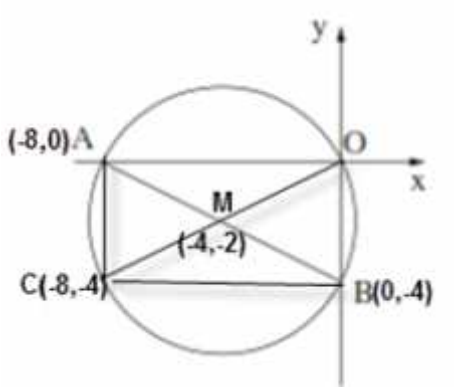
. 16:10

, 9:30 -

. 16:10

:

"



AB  $\angle AOB = 90^\circ$

AB :

AB

$$\left. \begin{aligned} x_M &= \frac{-8+0}{2} = \frac{-8}{2} = -4 \\ y_M &= \frac{0+(-4)}{2} = \frac{-4}{2} = -2 \end{aligned} \right\} M(-4, -2)$$

$R = d_{MO} = \sqrt{(-4-0)^2 + (-2-0)^2} = \sqrt{20}$

$(x+4)^2 + (y+2)^2 = 20$  :

$\Delta BOC = 16$  (1)

BO

$$16 = \frac{BO \cdot h}{2}$$

$$32 = 4h$$

$$h = 8$$

$x_C = x_A = -8$  , BO - , AO

(BO , , , )

$x_C = -8$  :

$y_C = y_B = -4$  , x - BC - (2)

$y_C = -4$  -  $y_A = 0$   $x_C = -8$

$y_C = -4$  :

$\Delta BOC$  - OC BM .

$S_{\Delta BMC} = \frac{16}{2} = 8$  ,

$S_{\Delta BMC} = 8$  :

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$p = 0.8$  ,  $p^3 = 0.512$

$k = 3$  ,  $p = 0.8$  ,  $n = 4$

$$P_n(k) = \binom{n}{k} (p)^k (1-p)^{n-k}$$

$$P_4(3) = \binom{4}{3} (0.8)^3 (1-0.8)^{4-3}$$

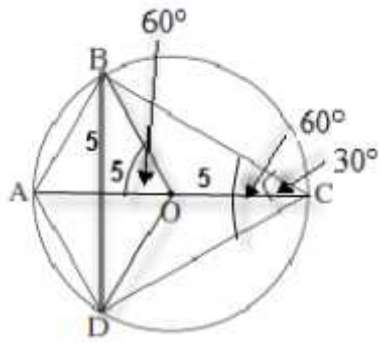
$$P_4(3) = \frac{4!}{4!(4-3)!} \cdot 0.8^3 \cdot 0.2^1$$

$$P_4(3) = 4 \cdot 0.8^3 \cdot 0.2^1$$

$$P_4(3) = 0.4096$$

$0.4096$





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.BC = DC , AB = AD ,

ABCD .1

O .3.  $\sphericalangle BCD = 60^\circ$  .2

.AB = " 5 .4.

. ABOD .

$\Delta ABO$  (2)  $\sphericalangle ABC = \sphericalangle ADC = 90^\circ$  (1) . : "

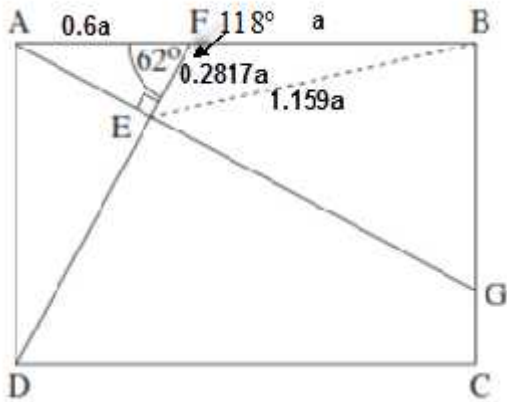
$\Delta ABO \sim \Delta BCD$  . .BC .

	ABCD	5	1
	$\sphericalangle ABC = \sphericalangle ADC$	6	5
	$\sphericalangle ABC + \sphericalangle ADC = 180^\circ$	7	5
	$\sphericalangle ABC = \sphericalangle ADC = 90^\circ$	8	7,6
(1) . . .			
	$\sphericalangle BCD = 60^\circ$	9	2
	$\sphericalangle BCA = 30^\circ$	10	9,5
,	AC - O	11	3,8
	$\sphericalangle BOA = 60^\circ$	12	11,9
	OB = OA	13	11
60°	$\Delta ABO$	14	13,12
(2) . . .			
	OB = OA	15	11
	AB = AD	16	1
	OB = AB = AD = OD	17	16,15,13
	ABOD	18	17
. . .			
	AB = " 5	19	4
( " 5 ) , - $\Delta ABC$ 30°	. AC = " 10	20	19,10,8
$\Delta ABC$	BC = " $\sqrt{75}$	21	20,19,8
. . .			

$\widehat{BC}$	$\sphericalangle BAC = \sphericalangle BDC$	<b>22</b>	
	$\sphericalangle BOA = \sphericalangle BCD$	<b>23</b>	<b>12,9</b>
	$\triangle ABO \sim \triangle BCD$	<b>24</b>	<b>23,22</b>
. . .			

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. a EF (1) .

$\triangle AFE$

$$\cos 62^\circ = \frac{EF}{AF}$$

$$0.6a \cos 62^\circ = EF$$

$$\boxed{EF = 0.2817a}$$

$$\therefore EF = 0.2817a :$$

. a BE (2)

.(180° -

)  $\sphericalangle$  BFE = 118°

$\triangle FBE$

$$(BE)^2 = (EF)^2 + (BF)^2 - 2 \cdot EF \cdot BF \cdot \cos \sphericalangle BFE$$

$$(BE)^2 = (0.2817a)^2 + a^2 - 2 \cdot 0.2817a \cdot a \cdot \cos 118^\circ$$

$$(BE)^2 = 1.3438a^2$$

$$\boxed{BE = 1.159a}$$

$$\therefore BE = 1.159a :$$

. EF = " 1.4085, BE = " 5.796 , a = " 5 .

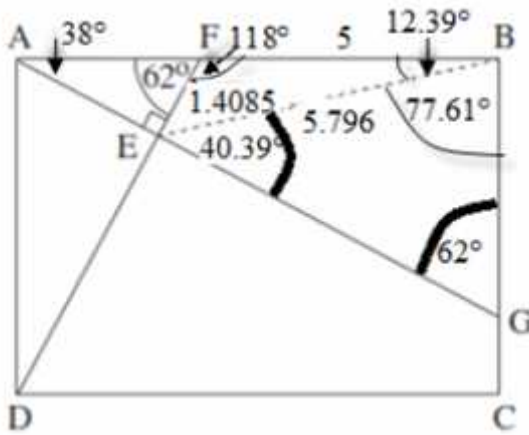
$\Delta FBE$  (1)

$$\frac{EF}{\sin \sphericalangle EBA} = \frac{BE}{\sin 118^\circ}$$

$$\frac{1.4085 \sin 118^\circ}{5.796} = \sin \sphericalangle EBA$$

$$\boxed{\sphericalangle EBA = 12.39^\circ}$$

.  $\sphericalangle EBA = 12.39^\circ$  :



( )  $\sphericalangle GBE = 77.61^\circ$  (2)

( $\Delta AEF$  180° )  $\sphericalangle BAG = 38^\circ$

( $\Delta BAG$  180° )  $\sphericalangle BGE = 62^\circ$

( $\Delta EBG$  180° )  $\sphericalangle BEG = 40.39^\circ$

$$S_{\Delta EBG} = \frac{(EB)^2 \cdot \sin \sphericalangle BEG \cdot \sin \sphericalangle GBE}{2 \cdot \sin \sphericalangle BGE}$$

$$S_{\Delta EBG} = \frac{5.796^2 \cdot \sin 40.39^\circ \cdot \sin 77.61^\circ}{2 \cdot \sin 62^\circ}$$

$$\boxed{S_{\Delta EBG} = 12.04 \text{ cm}^2}$$

.  $S_{\Delta EBG} = "$  12.04 :



$$f(x) = \frac{x-2}{2x+4}$$

$$2x+4 \neq 0 \rightarrow x \neq -2 \quad (1)$$

$$x \neq -2 : \quad :$$

(2)

$$f(0) = \frac{0-2}{2 \cdot 0+4} = \frac{-2}{4} = -0.5 \rightarrow \boxed{(0, -0.5)} \text{ - } x=0 : y$$

$$0 = x-2 \rightarrow x=2 \rightarrow \boxed{(2, 0)} \text{ - } y=0 : x$$

$$(2, 0) , (0, -0.5) :$$

(3)

$$( \quad ) x = -2 \quad : y -$$

$$(1) \quad ( \quad ) y = 0.5 : x -$$

$$y = 0.5 , x = -2 :$$

(4)

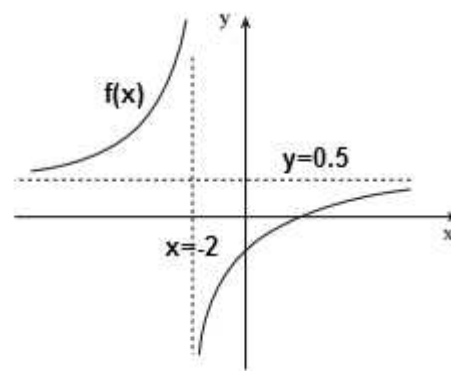
$$f'(x) = \frac{2x+4-2(x-2)}{(2x+4)^2}$$

$$f'(x) = \frac{2x+4-2x+4}{(2x+4)^2}$$

$$\boxed{f'(x) = \frac{8}{(2x+4)^2}}$$

$$x : \quad , x < -2 \quad x > -2 : \quad :$$

(5)



• (2,0)

$$f'(0) = \frac{8}{(2 \cdot 2 + 4)^2} = \frac{1}{8}$$

• P

x -

$$\frac{1}{8} = \frac{8}{(2x+4)^2}$$

$$(2x+4)^2 = 64$$

$$2x+4 = 8 \quad 2x+4 = -8$$

$$x = 2 \quad x = -6$$

$$y = \frac{-6-2}{2 \cdot (-6)+4} = 1 \rightarrow \boxed{P(-6,1)}$$

• P(-6,1) :

$$g(x) = f(x) + C$$

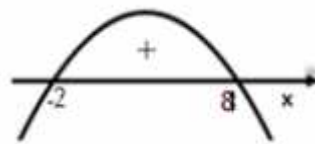
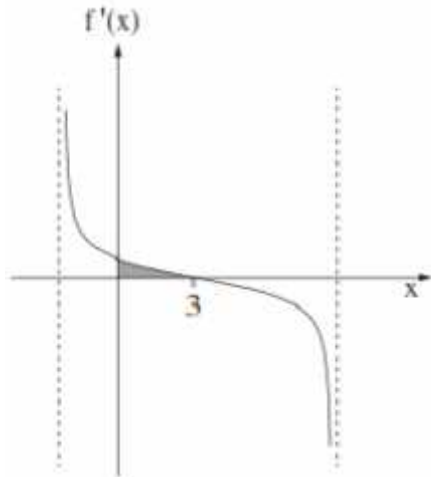
$$C = f(x)$$

$$, y=0 \quad g(x)$$

$$• y = 0.5 \quad f(x)$$

$$, \quad 0.5$$

• C = -0.5 :



$f(x) = \sqrt{-x^2 + bx + 16}$   
 $x = 3$  (1)

$f'(x) = \frac{-2x + b}{2\sqrt{-x^2 + bx + 16}}$   
 $0 = -2 \cdot 3 + b$   
 $b = 6$

$f(x) = \sqrt{-x^2 + 6x + 16}$  (2)

$f'(x) = \frac{-2x + b}{2\sqrt{-x^2 + bx + 16}}$

$0 = -2 \cdot 3 + b$

$b = 6$

$b = 6$

$f(x) = \sqrt{-x^2 + 6x + 16}$

$-x^2 + 6x + 16 \geq 0$

$x = 8, x = -2$

$-2 \leq x \leq 8$

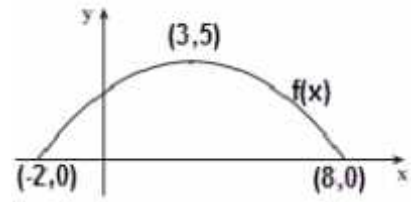
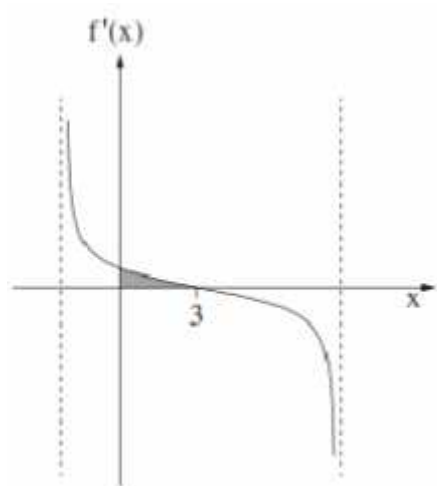
$-2 \leq x \leq 8$

$(-2, 0), (8, 0)$

$x = 3$  (1)

$x = 3 \rightarrow y = \sqrt{-3^2 + 6 \cdot 3 + 16} = 5 \rightarrow (3, 5)$

$(-2, 0), (8, 0), (3, 5)$



$$S = \int_0^3 f'(x) dx = f(x) \Big|_0^3$$

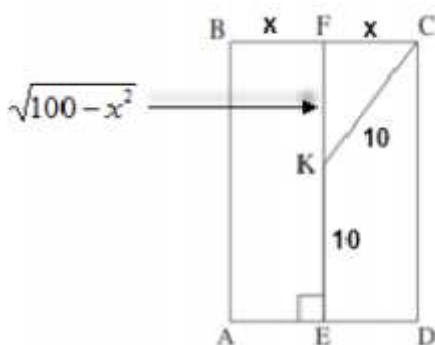
$$S = f(3) - f(0)$$

$$S = 5 - (\sqrt{-0^2 + 6 \cdot 0 + 16})$$

$$S = 5 - 4$$

$$\boxed{S = 1}$$

• " 1 :



.  $\Delta FKC$  -

.  $FC = x$  .

FK

$$(KC)^2 + x^2 = 10^2$$

$$(KC)^2 = 100 - x^2$$

$$KC = \sqrt{100 - x^2}$$

.  $KC = \sqrt{100 - x^2}$  :

. ABCD **היקף המלבן** **מקסימום** .

F

,  $BC = 2x$

(  $FCDE$  )  $CD = 10 + \sqrt{100 - x^2}$  ,  $FE = 10 + \sqrt{100 - x^2}$

$$P = 2 \cdot 2x + 2 \cdot (10 + \sqrt{100 - x^2})$$

$$P = 4x + 20 + 2\sqrt{100 - x^2}$$

$$P' = 4 - \frac{2 \cdot 2x}{\sqrt{100 - x^2}}$$

$$P' = \frac{4\sqrt{100 - x^2} - 2x}{\sqrt{100 - x^2}}$$

$$0 = 4\sqrt{100 - x^2} - 2x$$

$$x = 2\sqrt{100 - x^2} \quad ()^2$$

$$x^2 = 4(100 - x^2)$$

$$5x^2 = 400$$

$$x^2 = 80$$

$$x = \sqrt{80}$$

$$\text{test: } \sqrt{80} = 2\sqrt{100 - \sqrt{80}^2} \rightarrow \sqrt{80} = 2\sqrt{20} \rightarrow \sqrt{80} = \sqrt{80} \quad \text{o.k.}$$

$$\left. \begin{aligned} P'(8) &= \frac{4\sqrt{100 - 8^2} - 2 \cdot 8}{+} = \frac{8}{+} > 0 \\ P'(9) &= \frac{4\sqrt{100 - 9^2} - 2 \cdot 9}{+} = \frac{-0.56}{+} < 0 \end{aligned} \right\} x = \sqrt{80} \quad \text{Max}$$

. ABCD

,  $BC = 2\sqrt{80}$  :