

. () y - , () x - .

$$. xy = 1400 : 1,400$$

$$. 5y - , ,$$

$$, x-4 - , x-5$$

$$. y+100$$

$$. 5y + (x-4)(y+100) = 1900 , 1,900$$

$$\begin{cases} xy = 1400 \\ 5y + (x-4)(y+100) = 1900 \end{cases}$$

$$5y + xy + 100x - 4y - 400 = 1900$$

$$y + 1400 + 100x = 2300 \leftarrow xy = 1400$$

$$\boxed{y = -100x + 900}$$

$$x(-100x + 900) = 1400$$

$$-100x^2 + 900x - 1400 = 0$$

$$\boxed{x = 7} \quad \cancel{x = 2}$$

$$y = -100 \cdot 7 + 900$$

$$\boxed{y = 200}$$

$$. 200 , :$$

$$. 50\% - , , 300 - 200 - .$$

$$, 50\% - () :$$

.2 ()

$$, m_{BC} = \frac{-2-2}{6+2} = \frac{-4}{8} = -\frac{1}{2} \quad BC$$

$$. (\frac{6-2}{2}, \frac{-2+2}{2}) \rightarrow (2,0) \quad BC$$

$$y-0 = 2(x-2) \rightarrow y = 2x-4 : BC$$

$$. y = 2x-4 \quad BC \quad :$$

$$\begin{cases} y = 2x-4 \\ y = -3x+11 \end{cases}$$

$$2x-4 = -3x+11$$

$$5x = 15$$

$$x = 3 \rightarrow y = 2 \rightarrow M(3, 2)$$

$$R = d_{MC} = x_M - x_C = 3 - (-2) = 5$$

$$. (-x - \quad y_M = y_C \quad , \quad)$$

$$. (x-3)^2 + (y-2)^2 = 25 \quad \Delta ABC \quad :$$

$$. AC \quad B(6, -2) \quad (1).$$

$$-2 = -3 \cdot 6 + 11$$

$$-2 = -7$$

$$. B \quad AC$$

. :

$$, B \quad , AC \quad (1) \quad (2)$$

B

$$. BA \neq BC :$$

5 " , 2 , 2 :

.(,),(,),(,),(,),(,),(,),

.()

$$P(\text{different colours}) = \frac{2}{5} \cdot \frac{2}{4} + \frac{2}{5} \cdot \frac{1}{4} + \frac{2}{5} \cdot \frac{2}{4} + \frac{2}{5} \cdot \frac{1}{4} + \frac{1}{5} \cdot \frac{2}{4} + \frac{1}{5} \cdot \frac{2}{4} = \frac{4}{5} :$$

$$\frac{4}{5} : , ,$$

.(,),(,) -

$$P(\text{one white one red /different colours}) = \frac{P(\text{one white one red} \cap \text{different colours})}{P(\text{different colours})}$$

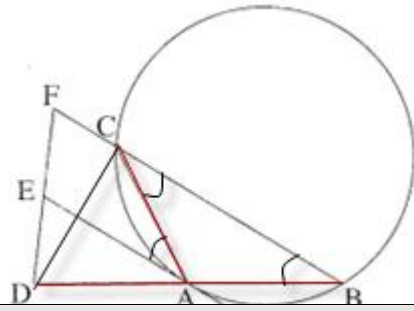
$$P(\text{one white one red /different colours}) = \frac{\frac{1}{5} \cdot \frac{2}{4} + \frac{2}{5} \cdot \frac{1}{4}}{\frac{4}{5}} = \frac{\frac{1}{4}}{\frac{4}{5}} = \frac{1}{4}$$

$$\frac{1}{4} :$$

.(,),(,) -

$$P = \frac{2}{5} \cdot \frac{2}{4} + \frac{2}{5} \cdot \frac{2}{4} = \frac{2}{5}$$

$$\frac{2}{5} :$$



.AB = AC ,

ΔABC .1

DA = AB .2

.A

EA .3

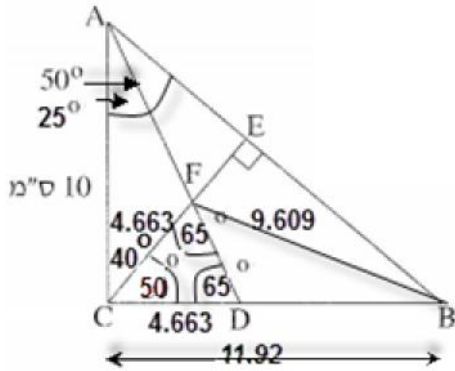
.ΔBDF -

AB . : "

.DC ⊥ BC .

	A EA	4	3
	∠EAC = ∠B	5	4
	AB = AC	6	1
ΔABC	∠ACB = ∠B	7	6
	∠ACB = ∠EAC	8	5
	AE BC	9	8
	DA = AB	10	2
	ΔBDF - AB	11	10,9
. . .			
	$AC = \frac{DB}{2}$	11	10,6
	DC ⊥ BC	12	11
()			
. . .			

$\angle ACB = 90^\circ$.
 $\angle CAD = 25^\circ$.
 $\angle CAB = 50^\circ$.
 $\angle ACE = 40^\circ$, $\angle AEC = 90^\circ$.
 $\angle ADC = 65^\circ$.
 $\angle CFD = 65^\circ$.
 $\angle DCF = 50^\circ$.
 $CD = CF$



$\triangle ACD$

$$\tan 25^\circ = \frac{CD}{AC}$$

$$10 \tan 25^\circ = CD$$

$$CD = 4.663 \text{ cm}$$

$$CF = 4.663 \text{ cm}$$

$$S_{\triangle CDF} = \frac{CD \cdot CF \cdot \sin \angle DCF}{2}$$

$$S_{\triangle CDF} = \frac{4.663^2 \sin 50^\circ}{2}$$

$$S_{\triangle CDF} = 8.329 \text{ cm}^2$$

" 8.329 $\triangle CDF$:

(1)

$\triangle ABC$

$$\tan 50^\circ = \frac{CB}{AC}$$

$$10 \tan 50^\circ = CB$$

$$CB = 11.92 \text{ cm}$$

$\triangle FBC$

$$(FB)^2 = (CF)^2 + (BC)^2 - 2 \cdot CF \cdot BC \cdot \cos \angle FCB$$

$$(FB)^2 = 4.663^2 + 11.92^2 - 2 \cdot 4.663 \cdot 11.92 \cdot \cos 50^\circ$$

$$(FB)^2 = 92.337$$

$$FB = 9.609 \text{ cm}$$

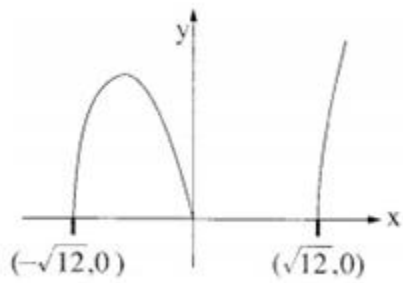
FB = " 9.609 :

FB , $\triangle FEB$ (2)

$$R = \frac{FB}{2} = \frac{9.609}{2} = 4.804 \text{ cm}$$

" 4.804 $\triangle FEB$:

"



$$f(x) = \sqrt{ax^3 - 12x}$$

$$(\sqrt{12}, 0)$$

$$0 = \sqrt{a\sqrt{12}^3 - 12\sqrt{12}}$$

$$0 = a\sqrt{12}^3 - 12\sqrt{12}$$

$$a = \frac{12\sqrt{12}}{\sqrt{12}^3} = 1$$

$$a = 1:$$

$$-\sqrt{12} \leq x \leq 0, x \geq \sqrt{12}$$

$$f(x) = \sqrt{x^3 - 12x}$$

$$f'(x) = \frac{3x^2 - 12}{2\sqrt{x^3 - 12x}}$$

$$0 = 3x^2 - 12$$

$$x = -2, x = 2 \rightarrow y = \sqrt{(-2)^3 - 12(-2)} = 4 \rightarrow (-2, 4)$$

$$(-2, 4):$$

$$y = k$$

$$f(x) = k$$

$$k > 4$$

$$(-2, 4),$$

$$f(x) = k$$

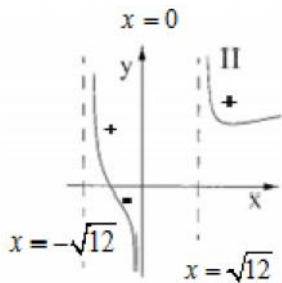
$$k > 4:$$

$$f'(x) = \frac{3x^2 - 12}{2\sqrt{x^3 - 12x}}$$

$$x = -\sqrt{12}, x = 0, x = \sqrt{12} \quad (1)$$

x -

$$-x = -\sqrt{12}, x = 0, x = \sqrt{12}:$$



$$f'(x)$$

$$\text{II} \quad (2)$$

()

$$f(x)$$

$$f(x)$$

()

$$f'(x),$$

II :

"

$g(x) = -x^2 - ax$, $f(x) = -x^2 + 16$

, (0, 16)

(" ") ,

$f(x) = -x^2 + 16$ (1)

$x =$

$y = 16$:

, (-4, 16) $g(x) = -x^2 - ax$ (2)

$16 = -(-4)^2 - a \cdot (-4)$

$32 = 4a \rightarrow a = 8$

$a = 8$:

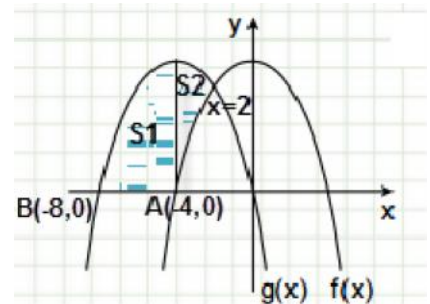
$g(x) = -x^2 - 8x$, $f(x) = -x^2 + 16$

$0 = -x^2 + 16 \rightarrow (4, 0), (-4, 0)$, (0, 16) : $f(x) = -x^2 + 16$ (1)

$0 = -x^2 - 8x \rightarrow (0, 0), (-8, 0)$, (0, 16) : $g(x) = -x^2 - 8x$

$(-8, 0)$, $(0, 0)$ - $g(x)$, $(4, 0)$, $(-4, 0)$, $(0, 16)$ - $f(x)$:

(2)



x -

$$-x^2 + 16 = -x^2 - 8x$$

$$8x = -16 \rightarrow x = -2$$

$$S_1 = \int_{-8}^{-4} (-x^2 - 8x - 0) dx$$

$$S_1 = -\frac{x^3}{3} - \frac{8x^2}{2} \Big|_{-8}^{-4}$$

$$S_1 = \left(-\frac{(-4)^3}{3} - 4 \cdot (-4)^2\right) - \left(-\frac{(-8)^3}{3} - 4 \cdot (-8)^2\right)$$

$$S_1 = \left(-\frac{128}{3}\right) - \left(-\frac{256}{3}\right)$$

$$\boxed{S_1 = 42\frac{2}{3}}$$

$$S_2 = \int_{-4}^{-2} (-x^2 - 8x - (-x^2 + 16)) dx$$

$$S_2 = \int_{-4}^{-2} (-8x - 16) dx$$

$$S_2 = -\frac{8x^2}{2} - 16x \Big|_{-4}^{-2}$$

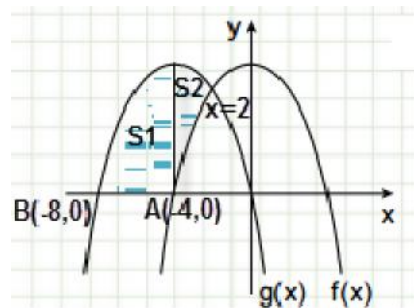
$$S_2 = (16 \cdot (-4) + 4 \cdot (-4)^2) - (16 \cdot (-2) + 4 \cdot (-2)^2)$$

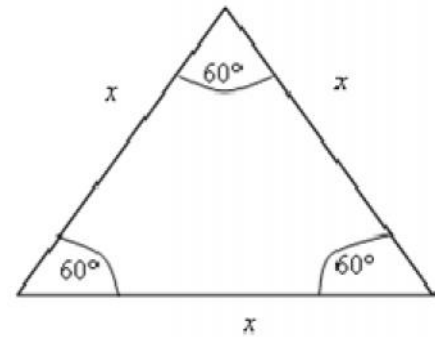
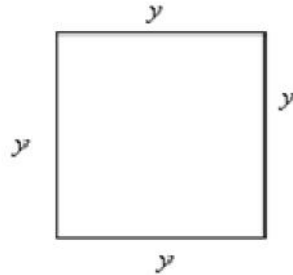
$$S_2 = (0) - (-16)$$

$$\boxed{S_2 = 16}$$

$$42\frac{2}{3} + 16 = 58\frac{2}{3} :$$

$$\cdot " \quad 58\frac{2}{3} \quad :$$





, " 9 - ,

$$3x + 4y = 9 :$$

$$4y = 9 - 3x$$

$$y = 2.25 - 0.75x$$

$$\cdot 2.25 - 0.75x \quad :$$

$$\frac{x \cdot x \cdot \sin 60}{2} = 0.433x^2 : \quad (1) .$$

$$(2.25 - 0.75x)^2 = 5.0625 - 3.375x + 0.5625x^2 :$$

$$\cdot 5.0625 - 3.375x + 0.5625x^2 \quad , 0.433x^2 \quad :$$

מינימום סכום שטחי המושל והריבוע. (2)

$$S = 5.0625 - 3.375x + 0.5625x^2 + 0.433x^2$$

$$S = 5.0625 - 3.375x + 0.9955x^2$$

$$S' = -3.375 + 1.991x$$

$$0 = -3.375 + 1.991x$$

$$1.991x = 3.375$$

$$x = 1.695$$

$$S'' = 1.991 > 0 \rightarrow \text{Min}$$

$$, x = 1.695 :$$

$$\cdot (2.25 - 0.75 \cdot 1.695) \cdot 4 = " 3.915 - , 1.695 \cdot 3 = " 5.085 \quad x = 1.695 .$$