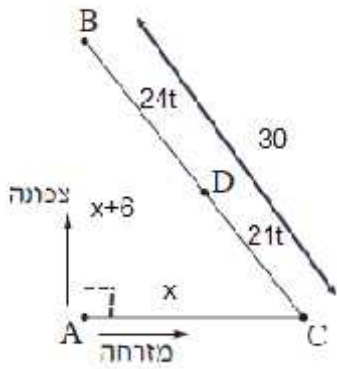


... , (") x - ' , x + 6

(")	(")	()		
x + 6	x + 6	1	B - A -	,
x	x	1	C - A -	,

... " 30 , BC ,

.ABC



. $x^2 + (x+6)^2 = 30^2$:

$$x^2 + (x+6)^2 = 900$$

$$x^2 + x^2 + 12x + 36 = 900$$

$$2x^2 + 12x - 864 = 0$$

$$\boxed{x=18} \rightarrow \boxed{x+6=24}$$

$$\cancel{x=-24} \leftarrow x > 0$$

... " 18 , " 24 :

. () t - D

9:10

. 18 + 3 = " 21 - , " 30

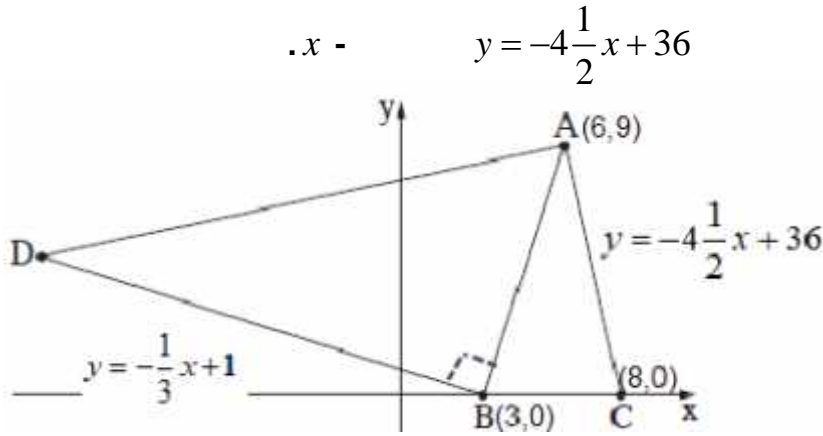
. $24t + 21t = 30$:

$45t = 30$

$$\boxed{t = \frac{2}{3}}$$

. 9:10 - , $\frac{2}{3} \cdot 60 = 40$, $\frac{2}{3}$

. 9:50 :



,C

$$y = 0$$

$$0 = -4 \frac{1}{2} x + 36$$

$$4 \frac{1}{2} x = 36 \quad : / 4 \frac{1}{2}$$

$$x = 8 \rightarrow \boxed{C(8,0)}$$

. 5 x - , BC

$$x_B = x_C - 5 = 8 - 5 = 3 \rightarrow \boxed{B(3,0)}$$

. B(3,0) , C(8,0) :

$$. 22 \frac{1}{2} \quad ABC$$

$$9 = -4 \frac{1}{2} x + 36$$

$$4 \frac{1}{2} x = 27 \quad : / 4 \frac{1}{2} \quad :$$

$$x = 6 \rightarrow \boxed{A(6,9)}$$

$$S_{\Delta ABC} = \frac{BC \cdot h_{BC}}{2}$$

$$y = 9 \quad 22 \frac{1}{2} = \frac{5 \cdot h_{BC}}{2}$$

$$9 = h_{BC} \rightarrow y_A = 9$$

. A(6,9) :

. BD

$$. m_{AB} = \frac{y_A - y_B}{x_A - x_B} = \frac{9 - 0}{6 - 3} = 3$$

.() $m_{BD} = -\frac{1}{3}$, $m_1 \cdot m_2 = -1$

, AB BD

. BD

$$y - 0 = -\frac{1}{3}(x - 3)$$

$$\boxed{y = -\frac{1}{3}x + 1}$$

. $y = -\frac{1}{3}x + 1$ BD :

$$x_D = -12$$

$$BD \quad x = -12 \quad (1)$$

$$y_D = -\frac{1}{3} \cdot (-12) + 1 = 5 \rightarrow \boxed{D(-12, 5)}$$

$$m_{AD} = \frac{y_A - y_D}{x_A - x_D} = \frac{9 - 5}{6 - (-12)} = \frac{2}{9}$$

$$AD \perp AC \rightarrow \boxed{\angle DAC = 90^\circ}$$

$$m_{AD} \cdot m_{AC} = \frac{2}{9} \cdot \left(-4\frac{1}{2}\right) = -1$$

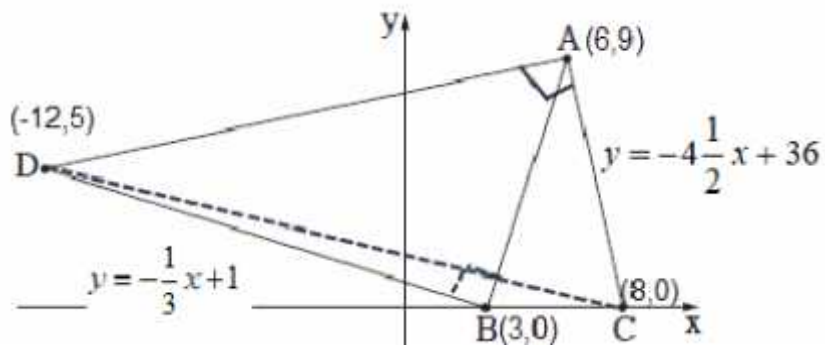
$$\angle DAC = 90^\circ$$

$$DC \quad (2)$$

$$\angle DAC = 90^\circ$$

$$\left. \begin{aligned} x &= \frac{8 + (-12)}{2} = -2 \\ y &= \frac{0 + 5}{2} = 2.5 \end{aligned} \right\} \boxed{(-2, 2.5)}$$

$$(-2, 2.5) \quad DAC$$



60 , 20 ,(Bag) 80

. 70% · 80 = 0.7 · 80 = 56 , 70%

. $P(\text{Glass} \cap \text{Plastic}) = 0.7 \rightarrow N(\text{Glass} \cap \text{Plastic}) = 0.7 \cdot 80 = 56 :$

. $60 - 56 = 4$

. $4 : 25\% = 4 : 0.25 = 16$, 25%

$$P(Y / \text{Glass}) = 0.25$$

$$\frac{N(Y \cap \text{Glass})}{N(\text{Glass})} = 0.25$$

$$\frac{4}{0.25} = N(\text{Glass})$$

$$N(\text{Glass}) = 16$$

	- Y	- B	
16	4	12	- Glass
64	56	8	- Plastic
80	60	20	

64 :

$$p(\text{B} \cap \text{Glass}) = \frac{N(\text{B} \cap \text{Glass})}{N(\text{Bag})} = \frac{12}{80} = 0.15 \text{ (1)}$$

. 0.15 , :

$$. p(\text{Glass} / \text{B}) = \frac{N(\text{Glass} \cap \text{B})}{N(\text{B})} = \frac{12}{20} = 0.6 \text{ (2)}$$

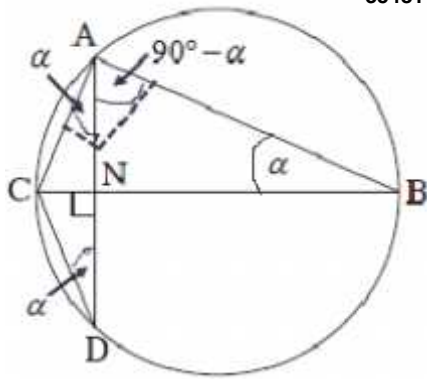
. 0.6 , :

$$k = 3, p = P(Y) = \frac{N(Y)}{N(\text{Bag})} = \frac{60}{80} = 0.75, n = 4,$$

:

$$P_4(3) = \binom{4}{3} \cdot 0.75^3 \cdot 0.25^{4-3} = 4 \cdot 0.75^3 \cdot 0.25^1 = \frac{27}{64}$$

$$\frac{27}{64}, \quad 3, \quad :$$

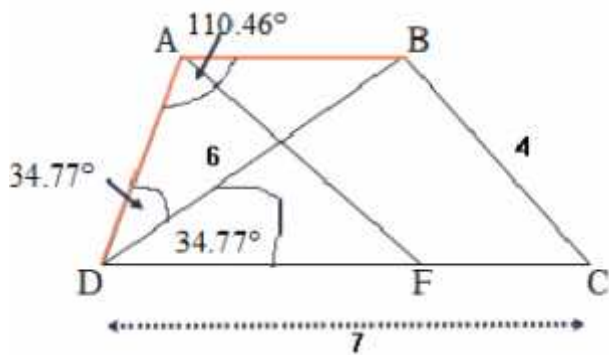


.AD ⊥ BC .2 BC .1
 .5 = .4 CD = 4 .3 .
 ΔACD . ΔABC ~ ΔNDC . : "
 NC . .(AC)² = NC · BC .

	BC	5	1
	∠CAB = 90°	6	5
	∠CND = 90°	7	2
	() ∠CAB = ∠CND	8	7,6
(AC)	() ∠B = ∠D = r	9	
	ΔABC ~ ΔNDC	10	9,8
. . .			
ΔABN	∠BAN = 90° - r	11	9,7
	∠NAC = r	12	11,6
	∠NAC = ∠D	13	12,9
,	, ΔACD AC = DC	14	13
. . .			
	$\frac{AB}{ND} = \frac{AC}{NC} = \frac{BC}{DC}$	15	10
	AC · DC = BC · NC	16	15
	(AC) ² = NC · BC	17	16,14
. . .			
	CD = 4	18	3
	5 =	19	4
	BC = 10	20	19,5
	4 ² = NC · 10 → NC = 1.6	21	20,18,14
. . .			

35481

19



$\triangle BDC$ -

$$(BC)^2 = (BD)^2 + (CD)^2 - 2 \cdot BD \cdot CD \cdot \cos \angle BDC$$

$$\cos \angle BDC = \frac{(BD)^2 + (CD)^2 - (BC)^2}{2 \cdot BD \cdot CD}$$

$$\cos \angle BDC = \frac{6^2 + 7^2 - 4^2}{2 \cdot 6 \cdot 7}$$

$$\boxed{\angle BDC = 34.77^\circ}$$

$$\therefore \angle BDC = 34.77^\circ :$$

$$, AB = AD :$$

$$\angle ABD = \angle BDC = 34.77^\circ$$

$$\angle ADB = \angle ABD = 34.77^\circ$$

$$\angle BAC = 180^\circ - 2 \cdot 34.77^\circ = 110.46^\circ$$

$\triangle ABD$

$$\frac{AD}{\sin 34.77^\circ} = \frac{BD}{\sin 110.46^\circ}$$

$$AD = \frac{6 \cdot \sin 34.77^\circ}{\sin 110.46^\circ}$$

$$\boxed{AD = 3.652}$$

$$\therefore 3.652 \quad AD \quad :$$

.DC

F

$$, S_{\Delta ADF} = 8 :$$

.DF (1)

$$S_{\Delta ADF} = \frac{AD \cdot DF \cdot \sin \sphericalangle ADF}{2}$$

$$8 = \frac{3.652 \cdot DF \cdot \sin 69.54^\circ}{2}$$

$$\frac{8 \cdot 2}{3.652 \cdot \sin 69.54^\circ} = DF$$

$$\boxed{DF = 4.676 \text{ cm}}$$

. 4.676 DF :

.AF (2)

: ΔADF

$$(AF)^2 = (AD)^2 + (DF)^2 - 2 \cdot AD \cdot DF \cdot \cos 69.54^\circ$$

$$(AF)^2 = 3.652^2 + 4.676^2 - 2 \cdot 3.652 \cdot 4.676 \cdot \cos 69.54^\circ$$

$$(AF)^2 = 23.26$$

$$\boxed{AF = 4.823}$$

ΔADF

$$\frac{AF}{\sin 69.54^\circ} = 2R$$

$$\frac{4.823}{2 \sin 69.54^\circ} = R$$

$$\boxed{R = 2.574}$$

.2.574 ΔADF :

$$f(x) = \frac{x^2}{x^2 + 2x - 3}$$

$x^2 + 2x - 3 \neq 0 \rightarrow x \neq -3, x \neq 1$: (1)

$x \neq -3, x \neq 1$:

(2)

() $x = -3 - x = 1$: y -

() $y = 1 : x -$
 () $y \rightarrow \frac{x^2}{x^2} = 1$, (2)

$y = 1, x = -3, x = 1$:

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

$$f'(x) = \frac{x[2(x^2 + 2x - 3) - x(2x + 2)]}{(x^2 + 2x - 3)^2}$$

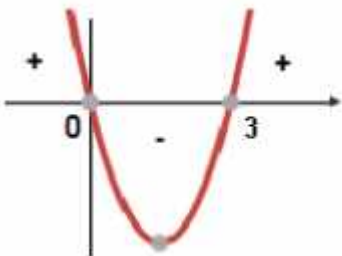
$$f'(x) = \frac{x(2x^2 + 4x - 6 - 2x^2 - 2x)}{(x^2 + 2x - 3)^2}$$

$$f'(x) = \frac{x(2x - 6)}{(x^2 + 2x - 3)^2}$$

$0 = x(2x - 6)$

$x = 0 \rightarrow (0, 0)$

$x = 3 \rightarrow (3, 0.75)$



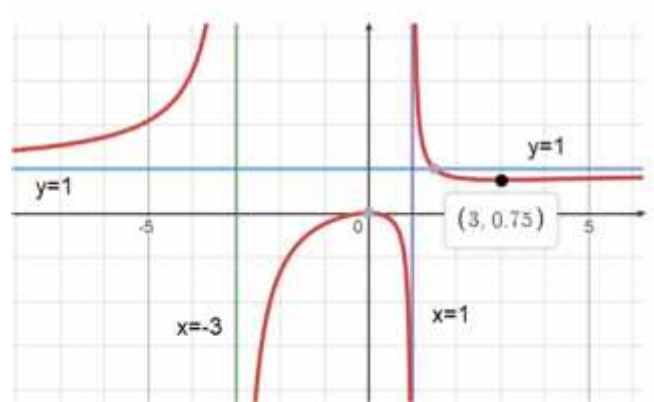
, $f'(x)$ _____ , ()

.(" ") ,

	-3		0		1		3		x
+		+		-		-		+	$f'(x)$
↗		↘	Max	↗		↘	Min	↗	

(0,0) , (3, 0.75)

$$f(x) = \frac{x^2}{x^2 + 2x - 3}$$



$$-3 < x < 1 \quad f'(x)$$

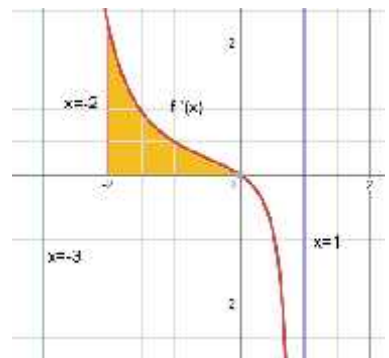
(1)

$$f'(0) = 0$$

$$-f(x) \quad /$$

$$0 < x < 1 \quad f'(x) < 0 \quad , \quad -3 < x < 0 \quad f'(x) > 0$$

$$x = -3, x = 1$$



(2)

(2)

$$S = \int_{-2}^0 (f'(x) - 0) dx = f(x) \Big|_{-2}^0$$

$$S = f(0) - f(-2) = 0 - \left(-\frac{4}{3}\right)$$

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

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

x , $f(x) = (x-3)^4 - 16$.
 $f(x)$

$$f'(x) = 4(x-3)^3$$

$$0 = 4(x-3)^3 \rightarrow x-3 = 0$$

$$x = 3 \rightarrow (3, -16)$$

$$\left. \begin{array}{l} f'(2) = -4 < 4 \\ f'(4) = 4 > 0 \end{array} \right\} \text{min}$$

$(3, -16)$:

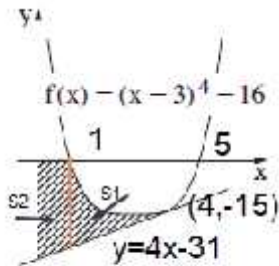
$y = 0$, x .

$$0 = (x-3)^4 - 16$$

$$16 = (x-3)^4$$

$$2 = x-3 \rightarrow 5 = x \rightarrow (5, 0)$$

$$-2 = x-3 \rightarrow 1 = x \rightarrow (1, 0)$$



$(1, 0)$, $(5, 0)$: x :

$f(4) = (4-3)^4 - 16 \rightarrow (4, -15)$ (1)

$$f'(4) = 4 \cdot (4-3)^4 = 4$$

$$y - (-15) = 4(x-4) \rightarrow y = 4x - 31$$

$y = 4x - 31$:

(2)

$$S_2 = \int_0^1 (0 - (4x - 31)) dx$$

$$S_2 = \int_0^1 (-4x + 31) dx$$

$$S_2 = \left[-\frac{4x^2}{2} + 31x \right]_0^1$$

$$\left. \begin{array}{l} x=1 \quad 29 \\ x=0 \quad 0 \end{array} \right\} S_2 = 29 - 0 \rightarrow S_2 = 29$$

$$S_1 = \int_1^4 ((x-3)^4 - 16 - (4x - 31)) dx$$

$$S_1 = \int_1^4 ((x-3)^4 + 15 - 4x) dx$$

$$S_1 = \left[\frac{(x-3)^5}{5} + 15x - \frac{4x^2}{2} \right]_1^4$$

$$\left. \begin{array}{l} x=4 \quad 28.2 \\ x=1 \quad 6.6 \end{array} \right\} S_1 = 28.2 - 6.6 \rightarrow S_1 = 21.6$$

$21.6 + 29 = 50.6$

50.6 :

"

$0 < x < 10$, $BE = x$.

$BC = 2x$, BC E (1)

$AB = 20 - 2x$, 20

ΔABE - AE

$(AE)^2 = x^2 + (20 - 2x)^2$

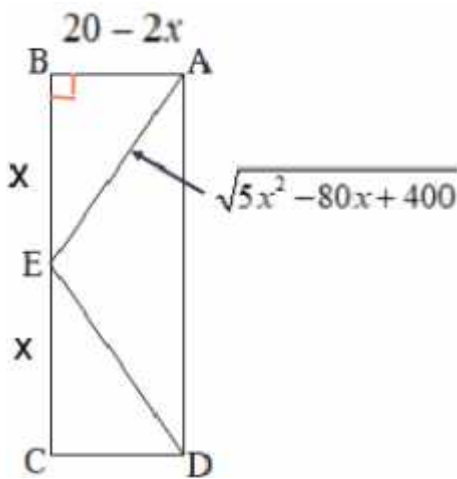
$(AE)^2 = x^2 + 400 - 80x + 4x^2$

$(AE)^2 = 5x^2 - 80x + 400$

$AE = \sqrt{5x^2 - 80x + 400}$

$AE = \sqrt{5x^2 - 80x + 400}$:

מינימום אורך הקטע AE (2)



$AE = \sqrt{5x^2 - 80x + 400}$

$(AE)' = \frac{10x - 80}{\sqrt{5x^2 - 80x + 400}}$

$0 = 10x - 80$

$80 = 10x$

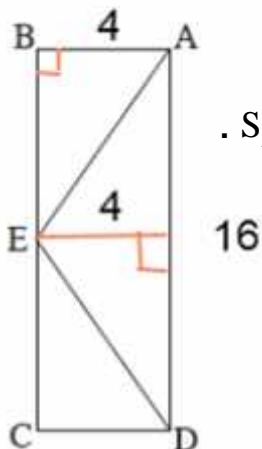
$x = 8$

$(AE)'(7) = \frac{10 \cdot 7 - 80}{+} = \frac{-10}{+} < 0$
 $(AE)'(9) = \frac{10 \cdot 9 - 80}{+} = \frac{10}{+} > 0$ } $x = 8$ Min

$BC = 2 \cdot 8 = 16 \rightarrow BC = AD = 16$

$AB = 20 - 2 \cdot 8 = 4 \rightarrow AB = DC = 4$

AE , $AB = DC = 4$, $BC = AD = 16$:



$S_{\Delta AED} = \frac{AB \cdot AD}{2} = \frac{4 \cdot 16}{2} = 32$,

AED

AD :

" 32 ΔAED :