$$f(x)=\frac{a}{6x^2-x^3} \qquad a>0$$

שאלה 6

(א) (1) $6x^2-x^3\neq 0$

$x^2(6-x)\neq 0$

$x=0 \qquad x=6$

תחום הגדרה: $x\neq 0$, $x\neq 6$

(2) $y=0$, $x=0$, $x=6$

(ב) $f'(x)=\frac{-a(12x-3x^2)}{(6x^2-x^3)^2}$

$0=-a(12x-3x^2)$

$12x=3x^2$

$3x(4-x)=0$

$x\neq 0 \qquad x=4$

x	-1	0	1	4	5	6	7
$f'(x)$	$+$	∄	$+$	0	$+$	∄	$+$
$f(x)$	↗	∄	↗	מקסימום	↗	∄	↗

$\min(4,y)$

תשובה סופית:

$0<x<4$

$x<0$

$4<x<6$

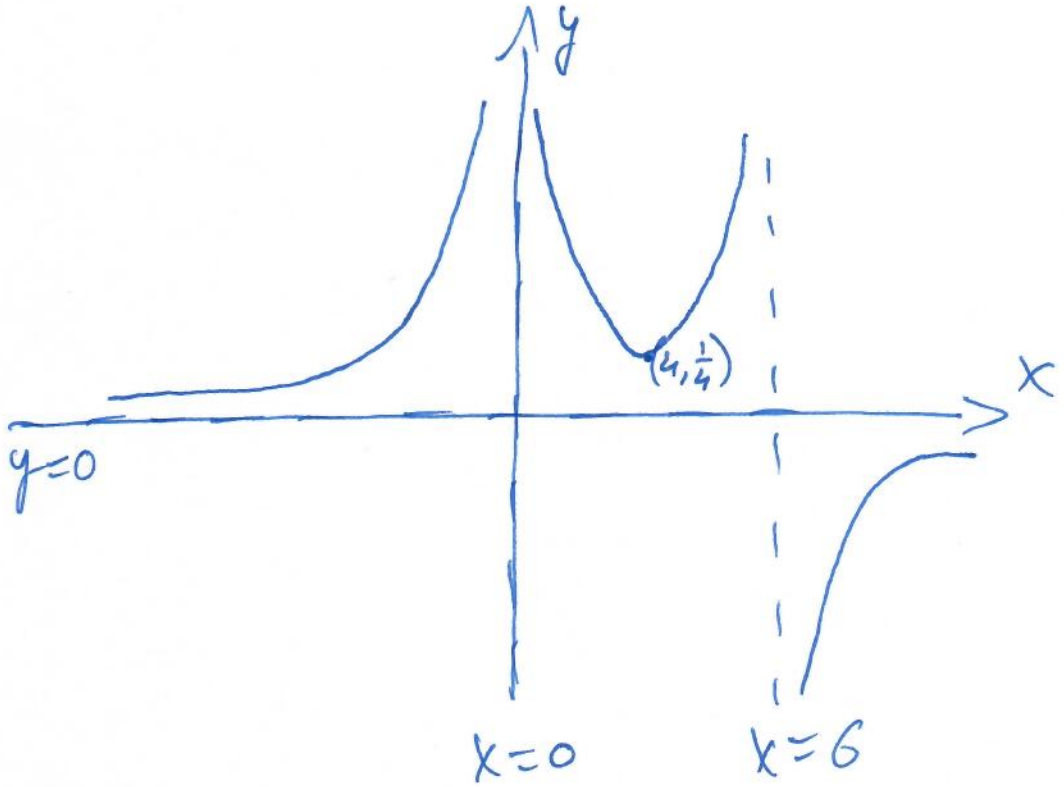
$7<x$

(3) $\min\left(4, \frac{1}{4}\right)$

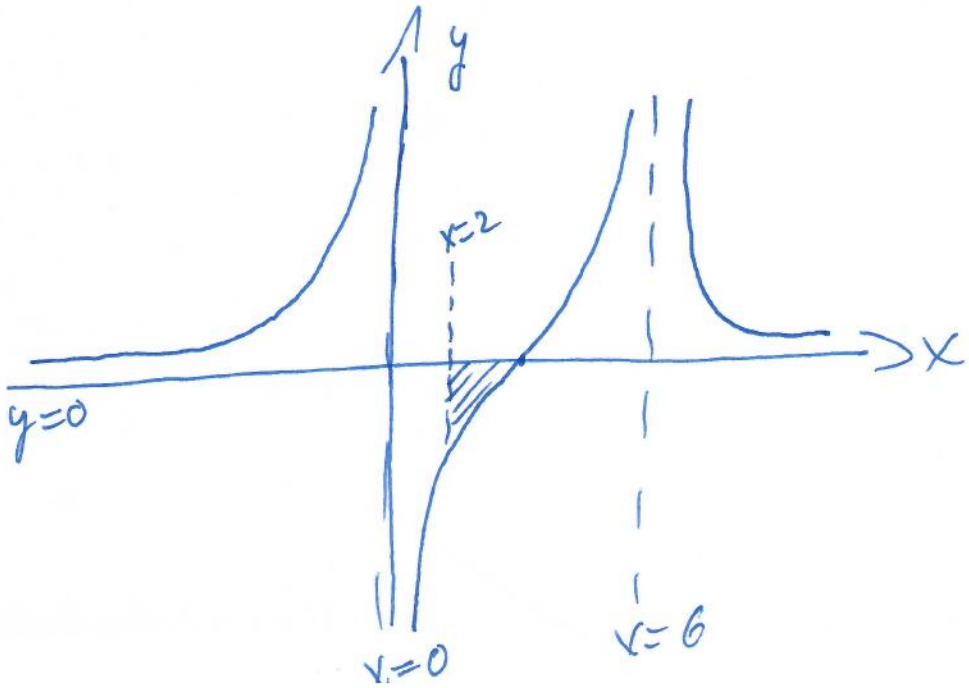
$$\frac{1}{4} = \frac{a}{96 - 64}$$

$$\frac{32}{4} = a$$

$$\boxed{a = 8}$$



(1) (3)



(2)

$$\int_2^4 -f'(x)\,dx \qquad \Big/_2^4 -f(x)$$

(1)

$x = 4$

$$\left[-\frac{1}{4}\right] - \left[-\frac{1}{2}\right] = \boxed{\frac{1}{4}}$$

2'nci