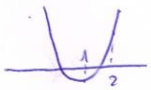
1.90

א) $mx^2+(m+1)x+m-3=0$

$x^2+\frac{m+1}{m}x+\frac{m-3}{m}=0$

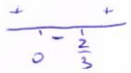
(כיוון הפרבולה כלפי מעלה) $m\neq 0$



$\boxed{f(1)<0}$

$1+\frac{m+1}{m}+\frac{m-3}{m}<0$

$0>\frac{m+m+1+m-3}{m}=\frac{3m-2}{m}$

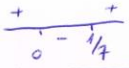


$\boxed{0<m<\frac{2}{3}}$

$\boxed{f(2)>0}$

$4+\frac{m+1}{m}\cdot 2+\frac{m-3}{m}>0$

$0<\frac{4m+2m+2+m-3}{m}=\frac{7m-1}{m}$



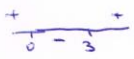
$\boxed{m<0 \text{ או } m>\frac{1}{7}}$

חיתוך הפתרונות:

$\boxed{\frac{1}{7}<m<\frac{2}{3}}$

ב) $0>\frac{x_1x_2}{1+x_1^2+x_2^2}=\frac{x_1x_2}{1+(x_1+x_2)^2-2x_1x_2}=\frac{\frac{c}{a}}{1+(-\frac{b}{a})^2+\frac{c}{a}}=\frac{\frac{m-3}{m}}{1+(\frac{m+1}{m})^2+\frac{m-3}{m}}=$

$0>\frac{\frac{m-3}{m}}{\frac{m^2+(m+1)^2+m^2-3m}{m}}=\frac{m-3}{3m^2-m+1}$



$\boxed{0<m<3}$

(מכנה) $m=0$