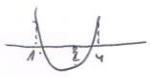
1.46 $x^2 - 2mx + m^2 - 1 = 0$

3

$1 < |x| < 4$

מקרה I:



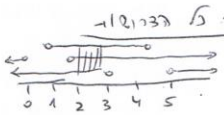
$0 < f(1) = 1 - 2m + m^2 - 1 = m(m-2) \rightarrow \boxed{m > 2 \text{ או } m < 0}$

$0 < f(4) = 16 - 8m + m^2 - 1 = m^2 - 8m + 15 \rightarrow \boxed{m < 3 \text{ או } m > 5}$

$1 < \frac{-b}{2a} < 4 \rightarrow 1 < \frac{2m}{2} < 4 \rightarrow \boxed{1 < m < 4}$

$0 \leq \Delta = 4m^2 - 4m^2 + 4 = 4 \rightarrow \boxed{m \in \mathbb{R}}$

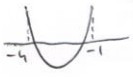
חיתוך כל התנאים:



$\boxed{2 < m < 3}$

$0 \leq \Delta \rightarrow \boxed{m \in \mathbb{R}}$

מקרה II:

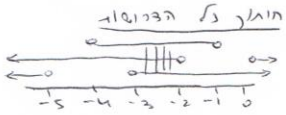


$0 < f(-4) = 16 + 8m + m^2 - 1 = m^2 + 8m + 15 \rightarrow \boxed{m > -3 \text{ או } m < -5}$

$0 < f(-1) = 1 + 2m + m^2 - 1 = m(m+2) \rightarrow \boxed{m > 0 \text{ או } m < -2}$

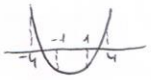
$-4 < \frac{-b}{2a} < -1 \rightarrow -4 < \frac{2m}{2} < -1 \rightarrow \boxed{-4 < m < -1}$

חיתוך כל התנאים:



$\boxed{-3 < m < -2}$

מקרה III:



$0 < f(4) \rightarrow \boxed{m < 3 \text{ או } m > 5}$

$0 > f(1) \rightarrow \boxed{0 < m < 2}$

$0 > f(-1) \rightarrow \boxed{-2 < m < 0}$

$0 < f(-4) \rightarrow$ ~~$-3 < m < 3$~~ $\boxed{m > -3 \text{ או } m < -5}$

$\emptyset$

פתרון: חיתוך I או II או III

$-3 < m < -2 \quad \text{או} \quad 2 < m < 3$

$\boxed{2 < |m| < 3}$