118 | 1

ב. $x^2 - 2|m|x + m^2 - 1 = 0$

נדרוש: I. $\Delta > 0$ II. $f(-2) \geq 0$ III. $f(4) \geq 0$ IV. $-2 \leq -\frac{b}{2a} \leq 4$

I. $4|m|^2 - 4m^2 + 4 = 4 > 0 \Rightarrow$ כל m טוב

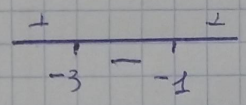
II. $4 + 4|m| + m^2 - 1 = 0$

עבור $m \geq 0$:

$4 + 4m + m^2 - 1 \geq 0$

$m^2 + 4m + 3 \geq 0$

$(m+3)(m+1) \geq 0$



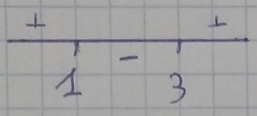
$(m \leq -3 \quad m \geq -1) \cap m \geq 0$

$m \geq 0$ - נפתר

עבור $m < 0$:

$m^2 - 4m + 3 \geq 0$

$(m-3)(m-1) \geq 0$



$(m \leq 1 \quad m \geq 3) \cap (m < 0)$

$m < 0$ - נפתר

לכן טווח עבור m: איחוד הפתרונות

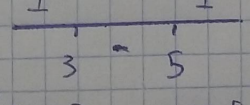
III $16 - 8|m| + m^2 - 1 \geq 0$

$m^2 - 8|m| + 15 \geq 0$

עבור $m \geq 0$:

$m^2 - 8m + 15 \geq 0$

$(m-5)(m-3) \geq 0$



$(m \leq 3 \quad m \geq 5) \cap m \geq 0$

נפתר

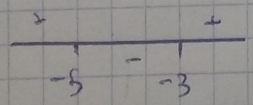
$0 \leq m \leq 3$

$m \geq 5$

עבור $m < 0$:

$m^2 + 8m + 15 \geq 0$

$(m+5)(m+3) \geq 0$



$(m \leq -5 \quad m \geq -3) \cap m < 0$

$-3 \leq m < 0$

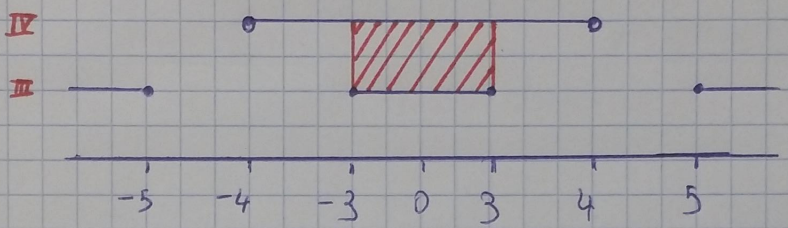
נפתר

$m \leq -5$

IV.

$$-2 < \frac{2|m|}{2} < 4$$

$$-4 < m < 4$$



$$-3 \leq m \leq 3$$