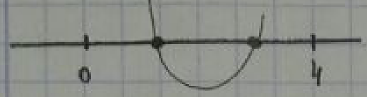
?[0,4]-1/12/2016

1.142

$2(x-m)^2+x+m-4=0$ מתי יהיו שני פתרונות בקטע $[0,4]$?



$\Delta>0$, $0\le\frac{-b}{2a}\le4$, $f(4)\ge0$, $f(0)\ge0$.

$2(x^2-2mx+m^2)+x+m-4=0$

$2x^2-4mx+2m^2+x+m-4=0$

$2x^2+(1-4m)x+2m^2+m$

$\Delta>0$

$(1-4m)^2-4\cdot2\cdot(2m^2+m-4)>0$

$1-8m+16m^2-16m^2-8m+32>0$

$33>16m$

$m<\frac{33}{16}$

$\boxed{m<2\frac{1}{16}}$

$0\le\frac{b}{2a}\le4$

$0<\frac{4m-1}{4}<4$

$0<4m-1<16$

$1<4m<17$

$\boxed{\frac{1}{4}\le m\le\frac{17}{4}}$

$f(4)\ge0$

$2(16-8m+m^2)+4+m-4\ge0$

$32-16m+2m^2+m\ge0$

$2m^2-15m+32\ge0$

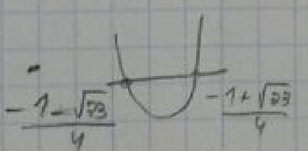
!m לכל

$f(0)\ge0$

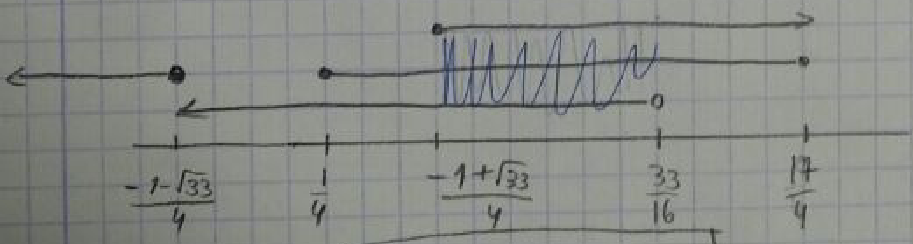
$2m^2+m-4\ge0$

$m_{1,2}=\frac{-1\pm\sqrt{1-4\cdot2\cdot(-4)}}{4}=$

$\frac{-1\pm\sqrt{33}}{4}$ ↗ $\frac{-1+\sqrt{33}}{4}$ ↘ $\frac{-1-\sqrt{33}}{4}$



$\boxed{m\le\frac{-1-\sqrt{33}}{4} \quad m\ge\frac{-1+\sqrt{33}}{4}}$



$\boxed{\frac{-1+\sqrt{33}}{4}\le m<\frac{33}{16}}$