Solve $x^2+\frac{x}{\sqrt{2}}+1=0$

Sol:- Given $x^2+\frac{x}{\sqrt{2}}+1=0$

multiply with $\sqrt{2}$

$\Rightarrow \sqrt{2}x^2+x+\sqrt{2}=0$

Now, standard eqn is $ax^2+bx+c=0$

by comparing, $a=\sqrt{2}$, $b=1$, $c=\sqrt{2}$

Discriminant $(D) = b^2-4ac$

$= 1-4(\sqrt{2})(\sqrt{2})$

$= 1-8 = -7$ [-ve]

$\therefore$ solutions are $\frac{-b\pm\sqrt{D}}{2a}$

$= \frac{-1\pm\sqrt{-7}}{2\sqrt{2}}$

$= \frac{-1\pm i\sqrt{7}}{2\sqrt{2}}$

$= \frac{-1+i\sqrt{7}}{2\sqrt{2}}, \frac{-1-i\sqrt{7}}{2\sqrt{2}}$ $[i=\sqrt{-1}]$

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