```
ClearAll["Global`*"];
m = Eigenvalues[{{μ - 2 * (μ^2 + 1)/(μ + 2)), 1}, {4 * ((μ^2 + 1)/(μ + 2)) - 1, μ}}]  // MatrixForm;
m // FullSimplify
```

$$\text{MatrixForm}\Big[\Big\{-\frac{\sqrt{((\mu+4)\,\mu+9)\,\mu^2+5}\,-2\,\mu+1}{\mu+2}, \frac{\sqrt{(\mu\,(\mu+4)+9)\,\mu^2+5}\,+2\,\mu-1}{\mu+2}\Big\}\Big]$$