5 The square roots of $-1-4\sqrt{5}\,\mathrm{i}$ can be expressed in the Cartesian form $x+\mathrm{i}y$, where x and y are real and exact.

By first forming a quartic equation in x or y, find the square roots of $-1-4\sqrt{5}\,\mathrm{i}$ in exact Cartesian form. [5]