

## Solving Two Pairs of Quadratic Equations in Quaternions

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**Abstract.** Two quaternions  $a$  and  $b$  are said to be semi-similar if there are  $x$  and  $y$  such that  $xay = b$  and  $yax = b$ ; said to be con-semi-similar if there are  $x$  and  $y$  such that  $\bar{x}ay = b$  and  $\bar{y}bx = a$ . In this note, the solvability conditions and general solutions to the two pairs of equations in quaternions are established.

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