Exercise 9

Let \( z = re^{i\theta} \) be a nonzero complex number and \( n \) a negative integer (\( n = -1, -2, \ldots \)). Then define \( z^{1/n} \) by means of the equation \( z^{1/n} = (z^{-1})^{1/m} \) where \( m = -n \). By showing that the \( m \) values of \((z^{1/m})^{-1}\) and \((z^{-1})^{1/m}\) are the same, verify that \( z^{1/n} = (z^{1/m})^{-1} \). (Compare with Exercise 7, Sec. 8.)