

(c) Modify the program so that it displays a complex number with a negative imaginary part as $a - bi$ instead of $a + -bi$. For example, the output of the program with the original coefficients would be

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root1 = -0.2 + 0.4i  
root2 = -0.2 - 0.4i
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2. (C99) Write a program that converts a complex number in Cartesian coordinates to polar form. The user will enter a and b (the real and imaginary parts of the number); the program will display the values of r and θ .
3. (C99) Write a program that converts a complex number in polar coordinates to Cartesian form. After the user enters the values of r and θ , the program will display the number in the form $a + bi$, where
$$a = r \cos \theta$$
$$b = r \sin \theta$$
4. (C99) Write a program that displays the n th roots of unity when given a positive integer n . The n th roots of unity are given by the formula $e^{2\pi i k/n}$, where k is an integer between 0 and $n - 1$.