Chapter 8 / **Example 8**

Converting complex number forms

a Write the complex number 2 + 3i in modulus argument form.

b Find in the form $a + bi$ the complex numbers with the following modulus (r) and argument (θ) values.

i $r = 3, \theta = 0.4$ **ii** $r = 5, \theta = 3.4$

Press MENU 1 to display the Run-Matrix screen for arithmetical calculations.

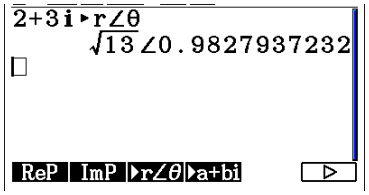
The fx-CG50 will find both the modulus and argument directly.

Type $2 + 3\text{i}$.

To enter i press SHIFT 0 ***i***.

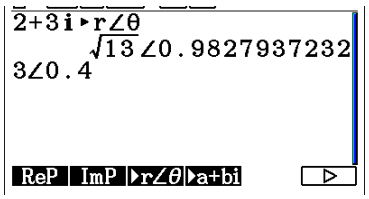
Press OPTN F3 COMPLEX F6 ▷ F3 ▶r∠θ and press EXE ⊙

$2 + 3\text{i} = \sqrt{13}\,\text{cis}\,0.983$.



Complex numbers can be entered in polar form.

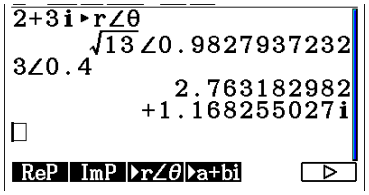
Type 3 SHIFT X,θ,T (∠) 0.4.



Press EXE.

Since the default format of complex numbers is Cartesian, the GDC converts from polar to Cartesian without needing to enter any additional command.

$3\,\text{cis}\,0.4 = 2.76 + 1.17\text{i}$.



Type 5 ∠ 3.4 and press enter.

$5\,\text{cis}\,3.4 = -4.83 - 1.28\text{i}$.