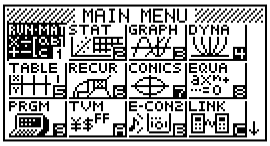
Converting between Polar / Rectangular form.

This resource was written by Derek Smith with the support of CASIO New Zealand. It may be freely distributed but remains the intellectual property of the author and CASIO.

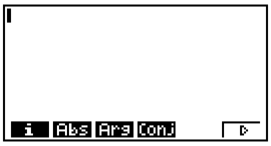
Select the **RUN-MAT** mode from the **MAIN MENU** by using the arrow keys to highlight the **RUN-MAT** icon and pressing **[EXE]** or press **[1]**.

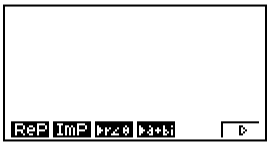


Note: $i^2 = -1$

Abs = Length of the complex number from the origin point (0,0) of the complex plane.
Arg = the argument (angle) between the positive real axis and the complex number.
Conj = The Conjugate of the complex number.
ReP = The Real part of the complex number.
ImP = The Imaginary part of the complex number.
Rectangular form: a + b*i*
Polar form: rcos θ + *i* sin θ = rcis θ

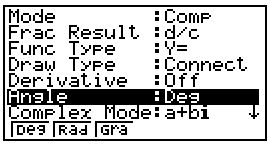
Accessing the Complex Number commands

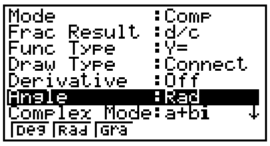




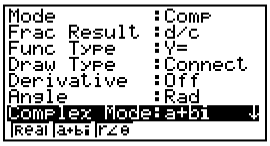
OPTN **F6**

Are you in degrees or radians? [SHIFT] [MENU] for **SETUP**, and scroll down to **'Angle'**. **[F1]** for degrees or **[F2]** for radians, then **[EXIT]**.

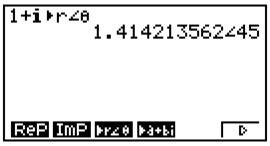




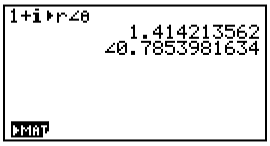
Is the calculator set up for Real solutions or Complex solutions?



<u>Example 1:</u> Convert the complex number 1 + ***i*** into polar form.
Type in '1+ *i*', then for the command '►r∠θ', press **[F3]**, then **[EXE]**.



In degrees

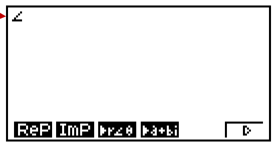


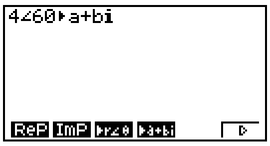
In radians

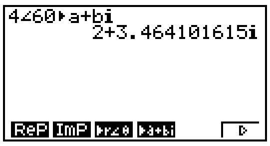
Answer: 1.414cis(45º) (3 d.p.) 1.414cis(0.785rad) (3 d.p.)

<u>Example 2:</u> Convert the complex number 4cis(60º) into rectangular form.

Locate the angle operator, **[SHIFT] [X,θ,T]**
Type in '4∠60', then for the command '►a+b*i*', press **[F4]**, then **[EXE]**.







Answer: 2 + 3.464***i*** (3 d.p.)