HP 48 G/GX

Applications Using Complex Numbers and Vectors

Applications often require the use of complex numbers. When solving a quadratic equation, for example, the roots may be real or complex, depending on its coefficients. Engineering applications may also require complex numbers or vector expressions.

To input the complex number 2+3i, press: LS, ( ), 2, SPC, 3, ENTER. To input a second complex number 1-4i, press: LS, ( ), 1, SPC, 4, +/-, ENTER. These entries can be multiplied or divided by pressing the appropriate function key.

If "Rectangular" has been selected as the "COORD SYSTEM" in "CALCULATOR MODES," the complex number, 2+3i, will be displayed as "(2,3)" if the "NUMBER FORMAT" is "Std". It will appear as "(2.00,3.00)" if the "NUMBER FORMAT" is selected to be "Fix 2". If the "COORD SYSTEM" is chosen to be "Polar," 2+3i will be displayed as "(3.61,∠56.31)", the magnitude and angle.

To input the complex number, 3∠45, press: LS, ( ), 3, SPC, RS, ∠, 45, ENTER. If the "NUMBER FORMAT" is set at "Std" and the "COORD SYSTEM" is set at "Polar," the number will be displayed as "(3,∠45)". If the "NUMBER FORMAT" is set at "Fix 2" and the "COORD SYSTEM" is set at "Rectangular," the number will appear as "(2.12,2.12)".

To input a vector 2i+3j, press: LS, [ ], 2, SPC, 3, ENTER. With "NUMBER FORMAT" set in "CALCULATOR MODES" at "Fix 2" and "COORD SYSTEM" selected to be "Rectangular," the entry is displayed as "[2.00 3.00]". It appears as "[3.61 ∠56.31]" when "COORD SYSTEM" is "Polar."

When a second vector, 2i-4j+3k, is entered, the cross or dot products are found by pressing MTH, VECTR, then pressing the white key corresponding to the appropriate function, or determining the absolute value by selecting "ABS".