Summary of Vector Commands on HP50G

MODE: To change modes, hit the MODE key and then use the ↑ and ↓ keys to move to the line you want. Then use the F2 key (CHOOS) to get a drop-down menu and select the option you want. Hitting ENTER or F6 (OK) will then change the calculator to that mode.

Operating Mode is assumed to be Algebraic.

Angle is assumed to be Degrees.

Hit CAS to get another page of options. On my calculator, I have the Numeric, Approx, and Complex boxes unchecked. I believe that what this means is that if you enter exact integers, the result will be displayed in exact form (fractions, simplified radicals, etc.). If you enter decimals, you'll get a decimal approximation as your answer. If you get an exact answer and want to override it to display the decimal approximation, just hit the orange arrow key and the ENTER, which is the key combination for →NUM (shown in orange above the ENTER key).

To enter the [] brackets, the key combo is White Arrow, then × (square brackets are shown in white above the times key). To enter a comma, it's Orange Arrow, then SPC. The angle bracket ∠ is ALPHA, Orange Arrow, 6 (or you could scroll through the choose characters screen if you wish).

To enter a vector $\mathbf{A} = 5\mathbf{i} + 3\mathbf{j}$, type in

[5.,3.]

(The periods are important, though I have no idea why. If you omit them, the rectangular calcs seem okay, but it won't convert to magnitude/direction form.) If you have set the Coord System mode to Rectangular, the HP will give you

[5. 3.]

However, if you then push F2 (CYLIN on soft menu) or F3 (SPHER), it will change to [5.83095 ∠30.963], which is the magnitude and direction of this vector. Pushing F1 (RECT) again gets it back to the original component form.

To enter a vector **B** = 5 at 30º in magnitude/direction form, type in

[5,∠30]

and if you're in RECT mode (F1), you'll get [4.330127 2.5], which is the component form of **B**, with B_x=4.330127 and B_y = 2.5. For reasons that elude me, your calculator will not calculate the components in exact form, but will instead always give the decimal approximation. (If anyone figures out how to get exact answers, please let me know!)