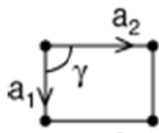
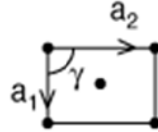


Phys 231, Fall 2007, Quiz 1, Oct 3

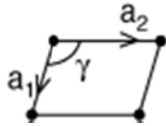
Your name:



rectangular $a_1 \neq a_2$ $\gamma = 90^\circ$



centered rectangular $a_1 \neq a_2$ $\gamma = 90^\circ$



oblique $a_1 \neq a_2$ $\gamma \neq 90^\circ, 120^\circ$

Above, three possible 2-dimensional Bravais Lattices are shown in position space. For each case: (1) Make a plot of the corresponding reciprocal Bravais Lattice. While the exact dimensions are not important, do show which of the two axes is longer in the reciprocal lattice, based on the position space lattice shapes given above. (2) Find, and make a good sketch of, the [first] Brillouin zone. (3) Lastly, determine whether there is any rotational symmetry and what it is (n-fold), and do the same for the reflection symmetry (x or y, [or horizontal or vertical,] if any), and the inversion symmetry (i).