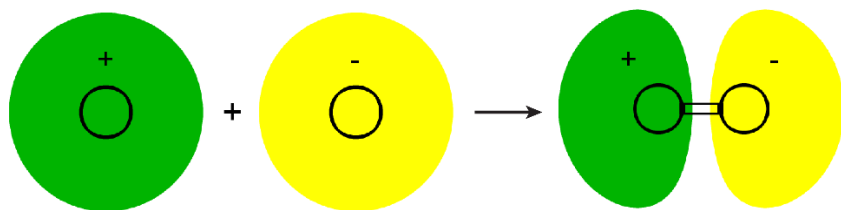


**Result:** The sigma antibonding molecular orbital looks like this:



**Solution:** The negative phase on atom B reflects the negative sign in the antibonding wave function:  $\Psi^*_{\text{molecule}} = \Psi_{1sA} - \Psi_{1sB}$ . The negative sign reverses the phase of the 1s orbital on atom B. Superposition of waves results in a node between the nuclei and antibonding character. Diagrams like these are easy to draw so they are often used in discussions of chemical bonding.