

Use the MO scheme for  $\text{BeH}_2$  and the qualitative Walsh diagram for a triatomic  $\text{AH}_2$  molecule (only the lowest four of six energy levels are shown), as appropriate, to answer the following four questions. Your answer should include a brief rationale for your choice.

- What will be the effect (increase, decrease, remain about the same) on the Be-H bond distances if the molecule is ionized?
- How does the ionization energy of the  $\text{BeH}_2$  molecule compare (greater, less, about the same) with that of the Be atom?
- How does the electron affinity of the  $\text{BeH}_2$  molecule compare (greater, less, about the same) with that of the Be atom?
- If  $\text{BeH}_2^-$  is generated how will the H-Be-H bond angle compare (greater, less, about the same) with that of the neutral molecule?

