Comparing Attraction in Two Ionic Contacts

Base your answers on the information provided and your knowledge of chemistry. Use the 2025 Chemistry Reference Tables as needed.

An exhibit shows a model of neighboring ions in three solids. The model compares one pair at a time. Opposite charges attract. For pairs with the same charge magnitudes, a smaller separation gives a stronger attraction.

Pair	Positive ion charge	Negative ion charge	Center-to-center separation (model units)
J	+2	−2	3
K	+2	−2	4
L	+1	−1	3

1 Which pair of records isolates a difference in separation while keeping both charges fixed?

(1) J and K

(2) J and L

(3) K and L

(4) All three records together

2 Compare the attractions in J and K. Use the charge and separation evidence. [1]

Answer and work

A student proposes using the separation rule alone to compare K and L. In that comparison both charge magnitude and separation differ.

3 Explain why the stated distance rule alone does not settle that comparison. [1]

Answer and work

4 A student reverses the sign of the negative charge in model J and keeps everything else fixed. What happens to the direction of the interaction? Explain. [1]

Answer and work