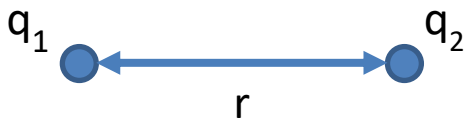
CONCEPT: ELECTRIC POTENTIAL ENERGY

- If you release 2 charges, they move → gain _____
  - Two charges have a "stored" energy → _____
  - ENERGY CONSERVATION: $-\mathbf{\Delta U} = \mathbf{\Delta K}$

- Electric potential energy between TWO POINT CHARGES:

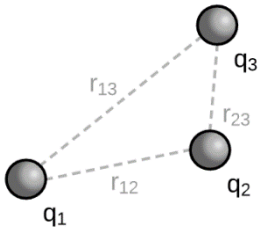
  $\rightarrow \mathbf{U} =$ _____



  - Be careful! Decreases $1/r$, **not** $1/r^2$
  - The signs of the charges & energy **DO** matter

EXAMPLE: How far apart must a 3 μC and a –2 μC charge be so that their potential energy is –100 mJ?

- Potential energy for a GROUP OF CHARGES:
  - $\mathbf{U_{TOT}} =$ _____
  - This is the energy needed to separate each charge _____.



EXAMPLE: How much potential energy is carried by the following system of charges?