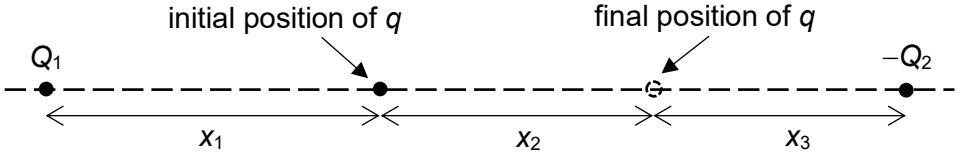
19 A test charge q is moved from one position to another along the line joining a positive charge Q_1 and a negative charge $-Q_2$. The distances between the positions of the charges are x_1, x_2 and x_3, as shown in the diagram below.



What is the work done by the electric field?

A $\frac{qQ_1}{4\pi\varepsilon_0}\left(\frac{1}{x_1}-\frac{1}{x_1+x_2}\right)+\frac{qQ_2}{4\pi\varepsilon_0}\left(\frac{1}{x_3}-\frac{1}{x_2+x_3}\right)$

B $\frac{qQ_1}{4\pi\varepsilon_0}\left(\frac{1}{x_1+x_2}-\frac{1}{x_1}\right)+\frac{qQ_2}{4\pi\varepsilon_0}\left(\frac{1}{x_2+x_3}-\frac{1}{x_3}\right)$

C $\frac{qQ_1}{4\pi\varepsilon_0}\left(\frac{1}{x_1+x_2}-\frac{1}{x_1}\right)+\frac{qQ_2}{4\pi\varepsilon_0}\left(\frac{1}{x_3}-\frac{1}{x_2+x_3}\right)$

D $\frac{qQ_1}{4\pi\varepsilon_0}\left(\frac{1}{x_1}-\frac{1}{x_1+x_2}\right)+\frac{qQ_2}{4\pi\varepsilon_0}\left(\frac{1}{x_2+x_3}-\frac{1}{x_3}\right)$