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$F = k\frac{q_1 q_2}{r^2}$ より、

$F_{AB} = k\frac{q_A q_B}{a^2} = \frac{kQ^2}{a^2}$

$F_{AC} = k\frac{q_A q_C}{a^2} = \frac{kQ^2}{a^2}$

$F_{AD} = k\frac{q_A q_D}{(\sqrt{2}\mathrm{a})^2} = \frac{kQ^2}{2a^2}$

よって合力Fは、

$F = \sqrt{(F_{AB})^2 + (F_{AC})^2} + F_{AD}$

$= \sqrt{2}\ \frac{kQ^2}{a^2} + \frac{kQ^2}{2a^2}$

$= \frac{(2\sqrt{2}+1)kQ^2}{2a^2}$