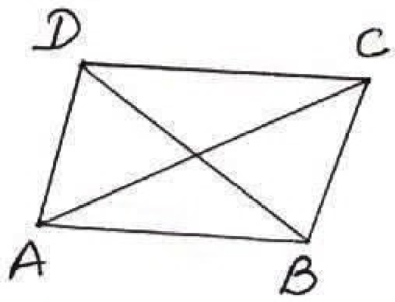
4. given - $\square ABCD$, diagonals AC, BD are joined



to prove $AB + BC + CD + DA > AC + BD$

proof - In $\triangle ABC$

$AB + BC > AC$ ... (i) $(\triangle)$

In $\triangle BCD$

$BC + CD > BD$ ... (ii) $(\triangle)$

In $\triangle CDA$

$CD + DA > AC$ ... (iii) $(\triangle)$

In $\triangle DAB$

$DA + AB > BD$ ... (iv) $(\triangle)$

(i) + (ii) + (iii) + (iv)

$\cancel{2}(AB + BC + CD + DA) > \cancel{2}(AC + BD)$

$\Rightarrow AB + BC + CD + DA > AC + BD$