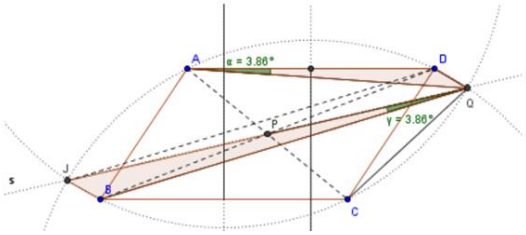
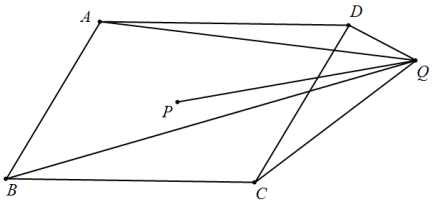
> *April wrote:*
>
> The diagonals of a trapezoid $ABCD$ intersect at point P. Point Q lies between the parallel lines BC and AD such that $\angle AQD = \angle CQB$, and line CD separates points P and Q. Prove that $\angle BQP = \angle DAQ$.
>
> *Author: unknown author, Ukraine*





Example 1 4 : As shown in Figure 1, the diagonals of the trapezoid $ABCD$ intersect at point P, $AD \parallel BC$, and point Q is located between BC and AD, satisfying $\angle AQD = \angle CQB$, to prove: $\angle BQP = \angle DAQ$.

Proof: Let $P=0$, $A=tC$, $D=tB$, $\dfrac{\dfrac{D-A}{Q-A}}{\dfrac{Q-B}{Q-P}}=T$, $\dfrac{\dfrac{Q-A}{Q-D}}{\dfrac{Q-C}{Q-B}}=t_1$, $T=\dfrac{t(1-t_1)}{(1-t)t_1}$.