

Degenerating the group law on a cubic curve and Menelaus's theorem

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Menelaus's theorem is a classical result in Euclidean geometry which states that given a triangle ABC in the plane and a line meeting AB at P , BC at Q , and AC at R , the signed distances between these points satisfy the equality $(AP * BQ * CR)/(PB * QC * RA) = -1$. I will argue that Menelaus' theorem should be viewed as a degeneration of the fact that the sum of three collinear points on a cubic surface is constant. This talk was motivated by a blog post by David Speyer.