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**Derege H Mussa\*** (dhm2114@columbia.edu), Department of Mathematics, Texas A&M  
university Commerce, Commerce, TX 75428. *Dual Tetrahedra and their Nets*. Preliminary report.

Tetrahedron(plural Tetrahedra) is a three dimensional solid having four vertices, four triangular faces and six edges which don't lie in a single plane. If the tetrahedron  $T$  with a six tuple  $S=(a,b,c,d,e,f)$  exists iff the tetrahedron is facial and the McCrea determinant is positive. If  $S$  is a six tuple for tetrahedron  $T$   $S=(a,b,c,d,e,f)$  then the faces  $a,b,c$ ;  $a,e,f$ ;  $b,d,f$  and  $c,d,e$  and the edges at the vertices has the pattern  $a,b,f$ ;  $a,c,e$ ;  $b,c,f$  and  $d,e,f$ . If the pattern of faces and vertices of a tetrahedron is interchanged then  $T$  is called the Dual of Tetrahedron  $T$  however these two tetrahedron are not congruent. Nets which are obtained by cutting three edges of the tetrahedron at a vertex of the tetrahedron or along a sequence of three edges that visits each vertex exactly once. the question is what happens to the nets if a tetrahedron with two paths of the same/different edge lengths? Theorem(Derege Mussa): If the Tetrahedron  $T$  has a six tuple  $S=(a,b,c,d,e,f)$  then the six tuple  $S=(f,e,d,c,b,a)$  give rise to the Dual Tetrahedron. The paper discusses new Mathematics questions 1. how to find the dual of Tetrahedron 2. Dual of tetrahedron 3. Nets of tetrahedron (Received June 24, 2014)