[gex118] Application of quotient rule I

(a) Show that if $U_j = T_{ij} V^i$ is a covariant vector for all contravariant vectors V^i, then the array T_{ij} is a covariant rank-2 tensor.

(b) Show that if $T_{ij} U^i V^j \doteq E$ is an invariant for all contravariant vectors U^i and V^j, then the array T_{ij} is a covariant rank-2 tensor.

Solution: