[gex98] Tensor summation convention I

Determine which of the following equations are true (=) and which are false ($\neq$).

$$a_{ij}x_iy_j \stackrel{?}{=} a_{ji}x_iy_y, \tag{1}$$

$$a_{ij}x_ix_j \stackrel{?}{=} a_{ji}x_ix_j, \tag{2}$$

$$(a_{ij} - a_{ji})x_ix_j \stackrel{?}{=} 0, \tag{3}$$

$$(a_{ij} - a_{ji})x_iy_j \stackrel{?}{=} 0, \tag{4}$$

$$a_{ij}(x_i - x_j) \stackrel{?}{=} 0, \tag{5}$$

$$a_{ij}(x_i - y_j) \stackrel{?}{=} 0, \tag{6}$$

$$a_{ij}x_iy_j \stackrel{?}{=} a_{jk}x_jx_k, \tag{7}$$

$$a_{ij}(x_i + y_j) \stackrel{?}{=} a_{ij}x_i + a_{ij}y_j, \tag{8}$$

$$b_{ijk}(x_i + y_j)z_k \stackrel{?}{=} b_{ijk}x_iz_k + b_{ijk}y_jz_k. \tag{9}$$

Solution: