

[gex99] Tensor summation convention II

Determine the rank of each tensor.

$$a_{ij}(x_i - x_j), \tag{1}$$

$$a_{ij}(x_i - x_k), \tag{2}$$

$$a_{ij}x_i - a_{ij}x_j, \tag{3}$$

$$b_{ijk}(x_i - y_j)z_k, \tag{4}$$

$$b_{ijk}x_i z_k + b_{ijk}y_j z_k, \tag{5}$$

$$a_{11}x_1x^2 + (a_{12} + a_{21})x_1x_2 + (a_{13} + a_{31})x_1x_3 \\ + a_{22}(x_2)^2 + (a_{23} + a_{32})x_2x_3 + a_{33}(x_3)^2. \tag{6}$$

Solution: