# Tensors

A tensor is a generalization of vectors and matrices and is easily understood as a multidimensional array. A vector is a one-dimensional or first order tensor and a matrix is a two-dimensional or second order tensor.

Tensor notation is much like matrix notation with a capital letter representing a tensor and lowercase letters with subscript integers representing scalar values within the tensor.

* Like vectors and matrices, tensors can be represented in Python using the N-dimensional array (ndarray).

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| 1  2  3  4  5  6  7  8  9 | # create tensor  from numpy import array  T = array([    [[1,2,3],    [4,5,6],    [7,8,9]],    [[11,12,13], [14,15,16], [17,18,19]],    [[21,22,23], [24,25,26], [27,28,29]],    ])  print(T.shape)  print(T) |