$$\frac{\partial}{\partial \boldsymbol{x}}(A\boldsymbol{x}) = A$$

$$\frac{\partial}{\partial \boldsymbol{x}}(\boldsymbol{y}^T A\boldsymbol{x}) = \boldsymbol{y}^T A$$

$$\frac{\partial}{\partial \boldsymbol{y}}(\boldsymbol{y}^T A\boldsymbol{x}) = \boldsymbol{x}^T A^T$$

$$\frac{\partial}{\partial \boldsymbol{y}}(\boldsymbol{y}^T A\boldsymbol{y}) = \boldsymbol{y}^T (A + A^T)$$

$$\frac{\partial}{\partial \boldsymbol{y}}(\boldsymbol{y}^T A\boldsymbol{y}) = 2\boldsymbol{y}^T A \quad (\text{ if } A \text{ is a sym. matrix})$$