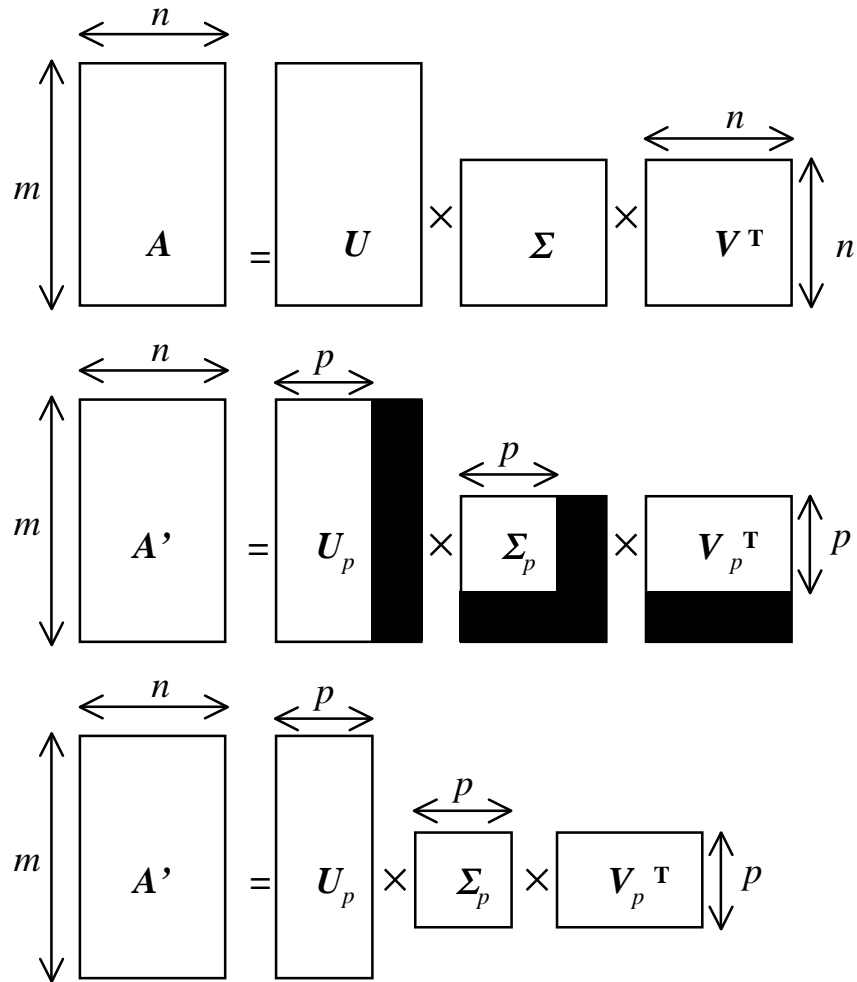
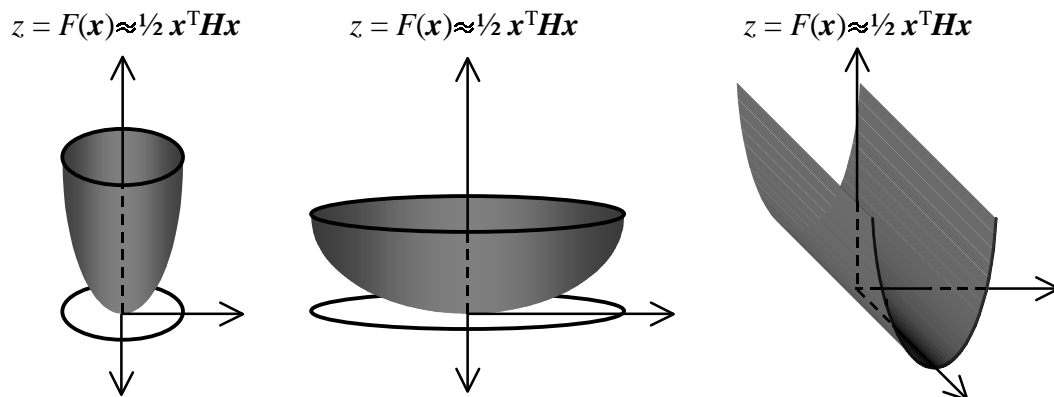


**Figure 1.** Examples of 2-D transformations (top) and 3-D to 2-D transformations (bottom).



**Figure 2.** A simple way to construct a rank  $p$  matrix: Compute the SVD (top); Set the smallest  $n-p$  singular values to zero (middle); Remove the corresponding entries from the matrices (bottom).



**Figure 3.** Geometric interpretation of approximating  $F$  by a quadratic function using the Hessian. Left: The eigenvalues of  $H$  are large and approximately equal; the minimum is sharp in all directions and  $H$  is well conditioned. Center: One of the eigenvalues is substantially larger than the other; the minimum is more shallow because the surface is elongated in one direction and  $H$  is not as well conditioned, i.e., inverting  $H$  is not as robust numerically. Right: One of the eigenvalues vanishes; the position of the minimum is undefined along one direction and  $H$  is singular.