Minimize $\lambda x^T M x - \mu^T x$

(1) Function 1: Generate initial feasible solution randomly
(2) Function 2: Give +x. Function 3 and 4 are required.
(3) Function 3: Give y (this function is unfinished in my code)
    $g = \nabla F = 2\lambda M x - \mu$
    rearrange g, try different m, get y
(4) Function 4: Give s
    $\Delta F = \lambda s^2 yMy - 2\lambda sxMy - \mu sy$

$$s = -\frac{(2\lambda xM - \mu)y}{2\lambda yMy}$$

    $0 < s < 1$ must hold
    If s<0, then computation is wrong.
(5) Give break condition
    The Δx is too small; or ΔF is too small;

Minimize $\lambda x^T M x - \mu^T x$ with PCA

(1) Function 1: Generate initial feasible solution randomly
(2) Function 2: Give +x. Function 3 and 4 are required.
(3) Function 3: Give y
    $g = \nabla F = 2\lambda M x - \mu$
    rearrange g, try different m, get y.
    if y==0 or y is small enough then break
    PCA CASE: $g = \nabla F = 2\lambda VCVx - \mu$
(4) Function 4: Give s
    $\Delta F = \lambda s^2 yMy - 2\lambda sxMy - \mu sy$

$$s = -\frac{(2\lambda xM - \mu)y}{2\lambda yMy}$$

    $0 < s < 1$ must hold
    If s<0, then computation is wrong.
    if s is small enough, then break.
    PCA CASE $s = -\frac{(2\lambda xVCV - \mu)y}{2\lambda yVCVy}$
(5) Give break condition
    The Δx is too small; or ΔF is too small;