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The question requires implementation of a logarithmic barrier. As a result, the barrier function of “barrier\_path.m” was changed to the following function:

And also to calculate the derivative and the hessian explicitly with the provided gradient and Hessian of the constraint function, two functions called “Logarithmic\_barrier\_grad” and “Logarithmic\_barrier\_Hessian” wer implemented using the following formulas:

Gradient of barrier function=\*dg(x)

Hessian of barrier function=

Newton\_barrier was used as the unconstrained subroutine.