# Task 3.1

* No, an exact solution exits if and only if vector b is in the range of A. Or if m = n.

# Task 3.2

* must be in the range of A. For this to be true,

# Task 3.3

# Task 3.4

# Task 3.5

* Two times back substitution then can be used to find the solution .

# Task 3.7

# Task 3.9

# Task 3.11

# Task 3.13

* Cholesky Factorization has the highest error. The critical step was computing the Gram matrix, since the matrix D and L are computed from the Gram matrix . Computing the Gram matrix causes the small numbers to be ignored due to the floating-point rounding error.

# Task 3.14