homework4/homework4.m

```matlab
1  % homework4.m
2  % Copywrite (C) 2024 Noam Schuck <noam.schuck@gmail.com>
3
4  clc;
5  clear;
6  close all;
7
8  % Question 1
9  ip = @(x, y) sum(conj(x) .* y);
10 ip_norm = @(x) sqrt(ip(x, x));
11
12 % Question 4
13 S = [1    2 + 3j -1 + 7j
14      1j    3j   6 + 10j
15      2 - 1j 1 - 1j 11 - 4j
16      -1     2j   3 + 4j];
17
18 % Question 5
19 U = gram_schmidt(S, ip_norm, ip);
20 orthoganal = isorthogonal(U(:, 1), U(:, 2), ip) && ...
21     isorthogonal(U(:, 2), U(:, 3), ip) && ...
22     isorthogonal(U(:, 3), U(:, 1), ip);
```