1. Consider the following C code:

```c
double A[16], B[16], C[16];
double X, Y;
int i;

for(i = 0; i < 16; i++)
    C[i] = X * A[i] + Y * B[i];
```

a) Write a RISC-V assembly program that implements this loop, using the standard (non-vector) instruction set. Count the number of floating point instructions that will be executed in performing this loop.

b) Write a version of this loop using a RISC-V model that has vector instructions. Use the vector op-codes listed in Figure 4.2. Count the number of floating point instructions that will be executed in performing this code.

c) Write a version of this loop using a RISC-V model that has SIMD instructions. Use the SIMD op-codes described in Chapter 4 (there is no table of these instructions in the chapter, but a syntax is suggested in the chapter). Count the number floating point instructions that will be executed in performing this code.