Problem 23

Roughly how many floating-point operations can a supercomputer perform in a human lifetime?

Solution

According to Figure 1.4 on page 10,

$$\text{time for single floating-point operation in a supercomputer} = 10^{-17}\ \text{s}$$

$$\text{human lifetime} = 10^{9}\ \text{s}.$$

Divide the human lifetime by the time for a single floating-point operation in a supercomputer to get the number of operations in a human lifetime.

$$\text{Number of Operations} \approx \frac{10^{9}\ \text{s}}{10^{-17}\ \text{s}} = 10^{26}$$