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# Pseudocode

Exercise 5-3

$$\int_0^1 x e^{-x} dx$$

a=0  
b=input

as  $N \rightarrow 1-100$

$$h = \frac{b-a}{N}$$

$$I = \frac{h}{3} (f(a) + f(b) + \sum_{k=1}^N f(a + (k-1)h) + \sum_{k=1}^{N-1} f(a + 2kh))$$

✓ Simpson's rule

$$\text{err} = \frac{I(N) - I(N-1)}{I(N)}$$

choose N with  $\text{err} < 10^{-5}$

as  $b \rightarrow 0.1-3$ ,

find  $I$  for each  $b$

Plot  $I$  against  $x$

### Exercise 5.9

