
```
function [numI, eval_num, err] = simpsons(f, a, b, delta, level, level_max,
eval_num)
%SIMPOSONS % adaptive simpsons rule
%

h = b - a;
c = (a + b) / 2;
I_1 = h * (f(a) + 4 * f(c) + f(b)) / 6;
level = level + 1;
d = (a + c) / 2;
e = (c + b) / 2;
I_2 = h * (f(a) + 4 * f(d) + 2 * f(c) + 4 * f(e) + f(b)) / 12;

% count the number of function evaluations
eval_num = eval_num + 3 + 5;

err = abs(I_2 - I_1) / 15;

if level >= level_max
    numI = I_2;
else
    if err <= 15 * delta
        numI = I_2 + (I_2 - I_1) / 15;
    else
        [numI_1, new_eval_num_1, err] = simpsons(f, a, c, delta / 2, level,
level_max, eval_num);
        [numI_2, new_eval_num_2, err] = simpsons(f, c, b, delta / 2, level,
level_max, eval_num);
        numI = numI_1 + numI_2;
        eval_num = new_eval_num_1 + new_eval_num_2;
    end
end

% fprintf('level: %d, eval_num: %d\n', level, eval_num);
% fprintf('I_1: %f, I_2: %f, numI: %f\n', I_1, I_2, numI);
end
```

Not enough input arguments.

Error in simpsons (line 6)

h = b - a;

Published with MATLAB® R2023b