Numerical Methods

Report

Date of the exercise: **11/04/2019**

Exercise: **Integration**

Group: 2, Team:

Subsection (names):

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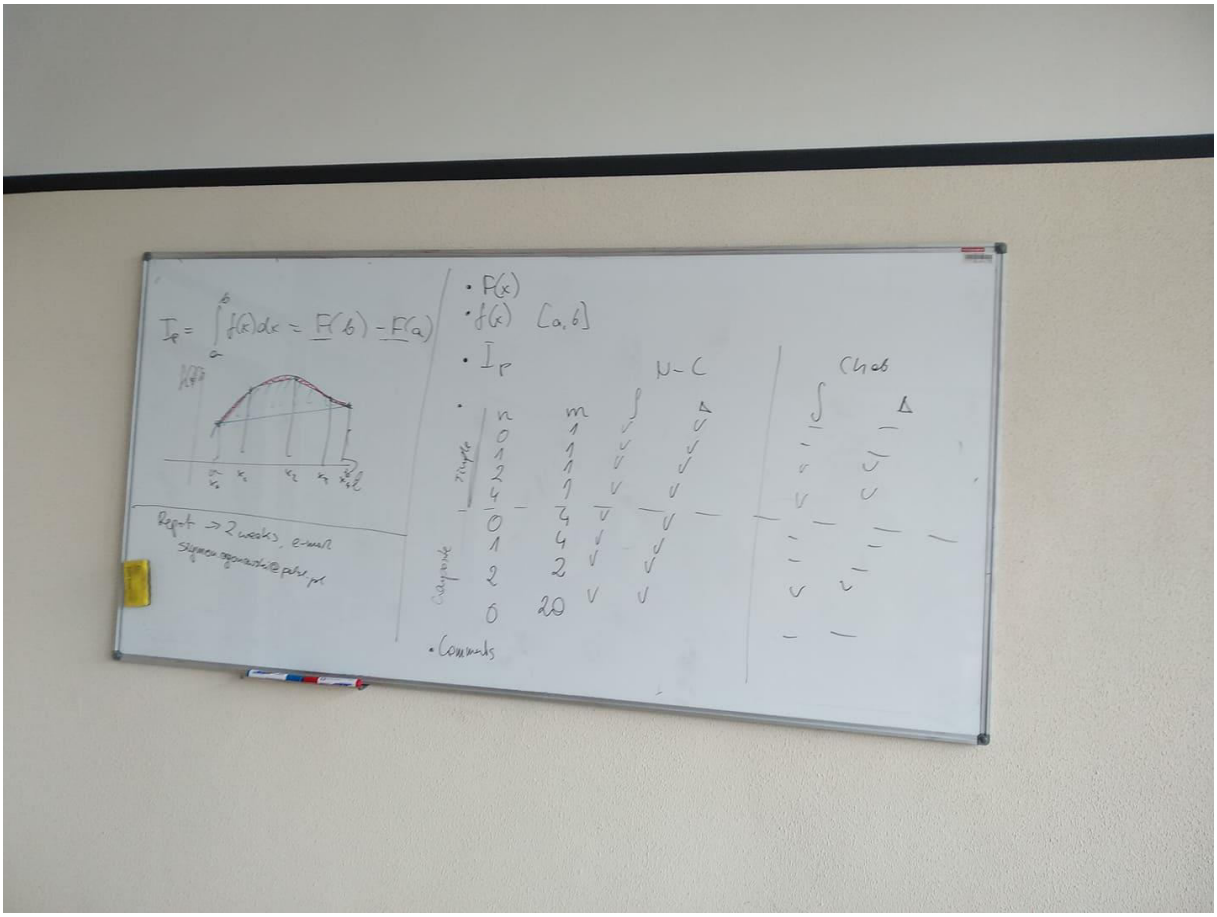


1. F(x) = 20*x*sin((x+10)/10)+200*cos((x+10)/10)-((2*cos((5*x)/2))/(5))

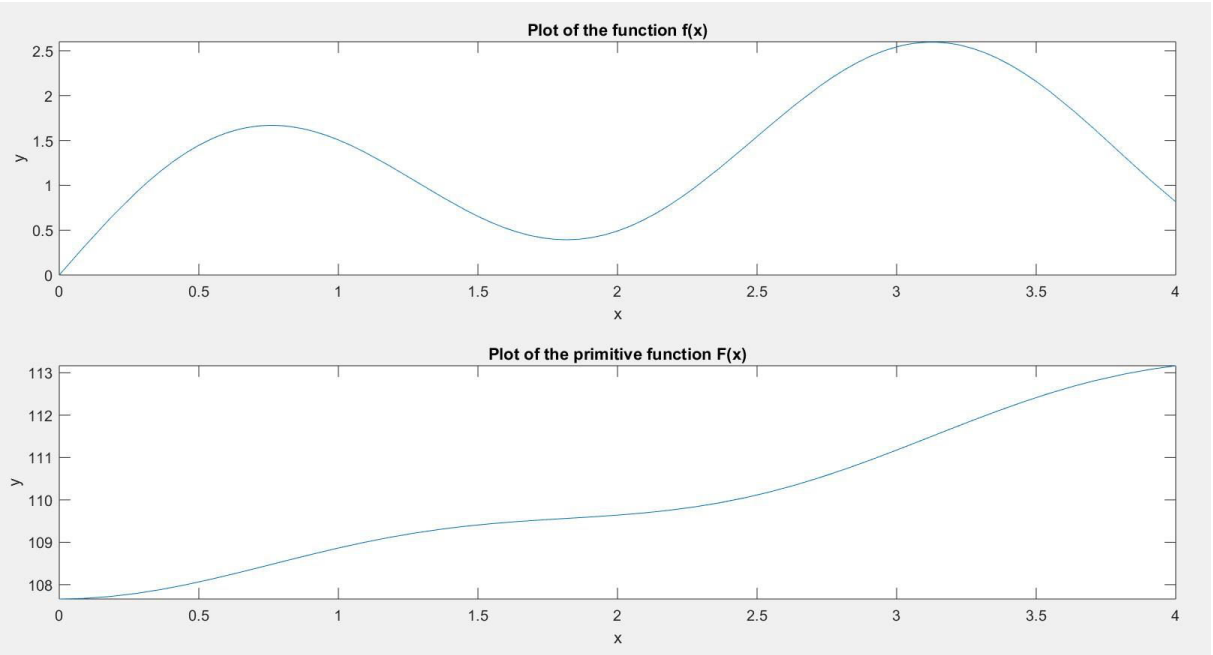
$$20x\sin\left(\frac{x+10}{10}\right)+200\cos\left(\frac{x+10}{10}\right)-\frac{2\cos\left(\frac{5x}{2}\right)}{5}$$

2. f(x) = sin(2.5*x)+2*x*cos(0.1*x+1), interval [0, 4]

$$\sin(2.5x)+2x\cos(0.1x+1)$$

3. F(b) – F(a) = 5.5046

4. Ploty



5. Kod z matlaba

```
syms x

a = 0;
b = 4;

f = @(x)sin(2.5.*x)+2.*x.*cos((0.1.*x)+1);
F = @(x)20.*x.*sin((x+10)/10)+200.*cos((x+10)/10)-((2.*cos((5.*x)/2))/(5));

subplot(2,1,1)
fplot(f, [a b])
xlabel('x')
ylabel('y')
title('Plot of the function f(x)')

subplot(2,1,2)
fplot(F, [a b])
xlabel('x')
ylabel('y')
title('Plot of the primitive function F(x)')

PreciseIntegral = feval(F, b) - feval(F, a)
```

6. kod z main.cpp (można wkleic do: http://www.planetb.ca/syntax-highlight-word)

7. Output z consoli

8. Summary