Summer Term I | MA124 Calculus II
Kostadinov | Boston University

Quiz No.3

student:

Problem 1: Let $F(x) = \sin(x^2 + 1)$. Find a function $f(u)$, and a function $u(x)$, such that $F(x) = f(u(x))$.

Problem 2: Let $F(x) = 2^{\ln 3x}$. Find a function $f(u)$, and a function $u(x)$, such that $F(x) = f(u(x))$.

Problem 3: Let $F(x) = \sqrt{x^3 + 1}$. Find a function $f(u)$, and a function $u(x)$, such that $F(x) = f(u(x))$.

Problem 4: Evaluate the definite integral:

$$\int_0^a x\sqrt{a^2 - x^2}\, dx$$

Problem 5: Evaluate the indefinite integral using the chain rule:

$$\int 2x(x^2 + 3)^4\, dx$$

Problem 6: Evaluate the indefinite integral using the chain rule:

$$\int \frac{(\ln x)^2}{x}\, dx$$

Problem 7: Evaluate the indefinite integral using the substitution rule:

$$\int \sin(3x)\,dx$$

Problem 8: Evaluate the indefinite integral using the chain rule:

$$\int \sqrt{3x+1}\,dx$$

Problem 9: Evaluate the definite integral:

$$\int_0^2 (x-1)^{25}\,dx$$

Problem 10: Evaluate the definite integral:

$$\int_0^{\pi/2} e^{\sin x}\cos x\,dx$$

Do you agree your quiz scores to be made available on the class webpage, identified only by two digits of your student ID number?
Please, answer 'yes' or 'no'.