

## Quiz No.4

student:

**Problem 1:** Evaluate the indefinite integral using integration by parts:

$$\int x e^x dx$$

**Problem 2:** Evaluate the indefinite integral using integration by parts:

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

**Problem 3:** Evaluate the indefinite integral using integration by parts:

$$\int e^x \sin(x) dx$$

**Problem 4:** Evaluate the indefinite integral using integration by parts:

$$\int \ln(x) dx$$

**Problem 5:** Evaluate the indefinite integral using integration by parts:

$$\int f(x) f'(x) dx$$

**Problem 6:** Evaluate the indefinite integral using the substitution rule:

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

**Problem 7:** Evaluate the definite integral using the substitution rule:

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

**Problem 8:** State the Fundamental Theorem of Calculus:

**Problem 9:** Evaluate the definite integral:

$$\int_0^{\pi/2} x \cos(2x) dx$$

**Problem 10:** Use Fundamental theorem of Calculus to find the derivative of the function:

a)  $F(x) = \int_0^x \ln(t) dt$

b)  $F(x) = \int_x^2 t^2 dt$

c)  $F(y) = \int_e^{xy} x^2 \sin(x) dx$

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'.