# 26 Lecture - MTH101

# **Important Mcqs**

#### What is the main goal of integration by substitution?

- A) To simplify complex integrals
- B) To differentiate functions
- C) To solve differential equations
- D) To find limits of functions

#### Answer: A

#### What is the general formula for integration by substitution?

- A) ?f(x)dx = F(x) + C
- B) ?f(g(x))g'(x)dx = ?f(u)du
- C) ?f'(x)dx = f(x) + C
- D)  $?e^x dx = e^x + C$

#### Answer: B

#### What should be substituted in the integral $x^2 e^{(x^3)} dx$ using integration by substitution?

- A) x
- B) e^(x^3)
- C) x^3
- D) 1/x
- Answer: C

#### How do you evaluate the integral after making the substitution?

- A) Apply the chain rule
- B) Use trigonometric identities

- C) Use integration by parts
- D) Use standard integration rules

#### Answer: D

#### What is the derivative of the function u = sin(x)?

- A)  $\cos(x)$
- B) sin(x)
- C)  $-\cos(x)$
- D) -sin(x)
- Answer: A

#### What is the substitution used for the integral $\frac{x}{x^2+1} dx$ ?

- A)  $u = x^{2}$
- B)  $u = x^{2+1}$
- C) u = x^3
- D)  $u = x/(x^2+1)$

#### Answer: D

#### Can you use integration by substitution to evaluate definite integrals?

- A) Yes
- B) No

#### Answer: A

#### What is the importance of adjusting the limits of integration when using integration by substitution?

- A) To simplify the integral
- B) To make the integral more complex
- C) To ensure that we are integrating over the same range in terms of the new variable
- D) To evaluate the integral faster

Answer: C

## What is the substitution used for the integral $e^{(2x+1)} dx$ ?

- A) u = 2x
- B) u = 2x + 1
- C)  $u = e^{(2x+1)}$
- D)  $u = e^{(2x)}$
- Answer: B

### Can you use integration by substitution for all integrals?

A) Yes

B) No

Answer: B