Integral Calculus (MATH-106)

HW-II _____ Spring 2019

Deadline: April 10 by 03:59 P.M **Maximum Points:** 25

Question 1 Evaluate the limit

$$\lim_{n\to\infty}\left(1+\frac{1}{n}\right)^{n^2}$$

3 Marks

Question 2 Evaluate the integral $\int x\, e^{-2x}\, dx$.

2 Marks

Question 3 Evaluate the integral $\int \tan^3 x\, \sec^4 x\, dx$.

2 Marks

Question 4 Evaluate the integral $\int \frac{x^2}{\sqrt{9-x^2}}\, dx$.

3 Marks

Question 5 Evaluate the integral $\int \frac{x^2+3}{(x+1)(x+2)^2}\, dx$.

3 Marks

Question 6 Evaluate the integral $\int \frac{dx}{\sqrt{x^2+2x}}$.

3 Marks

Question 7 Evaluate the integral $\int \frac{dx}{x^{\frac{1}{2}}+x^{\frac{1}{3}}}$.

3 Marks

Question 8 Evaluate the improper integral $\int_0^\infty \frac{x\, dx}{(x^2+1)^2}$.

3 Marks

Question 9 Find the area of the region bounded by the graphs of $x = y^2 + 2y + 4$ and $x = 6y + 4$.

3 Marks

—- Good Luck —-

Integral Calculus (MATH-106)

HW-II _____ Spring 2019

Deadline: April 10 by 03:59 P.M **Maximum Points:** 25

Question 1 Evaluate the limit

$$\lim_{x\to 0^+} (\sin x)^{2x}$$

3 Marks

Question 2 Evaluate the integral $\int x^4 \ln x \, dx$.

2 Marks

Question 3 Evaluate the integral $\int \tan^7 x \sec^2 x \, dx$.

2 Marks

Question 4 Evaluate the integral $\int \frac{x^2}{\sqrt{x^2-9}} \, dx$.

3 Marks

Question 5 Evaluate the integral $\int \frac{x^2+3}{(x+1)^2(x+2)} \, dx$.

3 Marks

Question 6 $\int \frac{dx}{\sqrt{x^2+x}}$.

3 Marks

Question 7 Evaluate the integral $\int \frac{dx}{x^{\frac{1}{2}}+x^{\frac{1}{4}}}$.

3 Marks

Question 8 Evaluate the improper integral $\int_0^\infty \frac{x\,dx}{(x^2+1)^3}$.

3 Marks

Question 9 Find the area of the region bounded by the graphs of $y = x^2 + 1$ and $y = x + 2$.

3 Marks

—- Good Luck —-

Integral Calculus (MATH-106)

HW-II _____ Spring 2019

Deadline: April 10 by 03:59 P.M **Maximum Points:** 25

Question 1 Evaluate the limit

$$\lim_{n\to 5}\left(\frac{1}{n-5}-\frac{1}{\ln(n-4)}\right)$$

3 Marks

Question 2 Evaluate the integral $\int \cosh^{-1} x\, dx$.

2 Marks

Question 3 Evaluate the integral $\int \sin^3 x\, \cos^4 x\, dx$.

2 Marks

Question 4 Evaluate the integral $\int \frac{x^3}{\sqrt{9-x^2}}\, dx$.

3 Marks

Question 5 Evaluate the integral $\int \frac{1-3x}{x^2+2x+10}\, dx$.

3 Marks

Question 6 Find $\int \frac{dx}{\sqrt{4x-x^2}}$.

3 Marks

Question 7 Evaluate the integral $\int \frac{dx}{6+3\sin x}$.

3 Marks

Question 8 Evaluate the improper integral $\int_0^\infty x^2\, e^{-3x^2}\, dx$.

3 Marks

Question 9 Find the area of the region bounded by the graphs of $y = 3 - x^2$ and $y = x + 2$.

3 Marks

—- Good Luck —-

Integral Calculus (MATH-106)

HW-II _____ Spring 2019

Deadline: April 10 by 03:59 P.M **Maximum Points:** 25

Question 1 Evaluate the limit

$$\lim_{n\to 0}(1+n)^{\frac{1}{n}}$$

3 Marks

Question 2 Evaluate the integral $\int \tan^{-1} x\, dx$.

2 Marks

Question 3 Evaluate the integral $\int \sin^2 x\, \cos^5 x\, dx$.

2 Marks

Question 4 Evaluate the integral $\int \frac{x^3}{\sqrt{x^2-9}}\, dx$.

3 Marks

Question 5 Evaluate the integral $\int \frac{5x-1}{x^2+2x+10}\, dx$.

3 Marks

Question 6 Find $\int \frac{dx}{\sqrt{x-x^2}}$.

3 Marks

Question 7 Evaluate the integral $\int \frac{dx}{6+3\cos x}$.

3 Marks

Question 8 Evaluate the improper integral $\int_0^\infty x\, e^{-3x}\, dx$.

3 Marks

Question 9 Find the area of the region bounded by the graphs of $x = 1-y^2$ and $y + x + 1 = 0$.

3 Marks

—- Good Luck —-