PRINTABLE VERSION

Quiz 6

You scored 0 out of 100

Question 1

You did not answer the question.

Calculate the integral.

$$\int \frac{5}{(x-3)(x+2)} \, dx$$

a) ○ $\ln\left|\frac{x-3}{x+2}\right| + C$

b) ○ $\ln|(x-3)(x+2)| + C$

c) ○ $5\ln|(x-3)+(x+2)| + C$

d) ○ $5\ln\left|\frac{x-3}{x+2}\right| + C$

e) ○ $\ln|(x-3)-(x+2)| + C$

Question 2

You did not answer the question.

Calculate the integral.

$$\int \frac{5x^4 - 4x^3 + 4x^2 + 2}{x^3 - x^2} \, dx$$

a) ○ $\frac{5}{2}x^2 + x - 2\ln|x| + 2\ln|x-1| + C$

b) ○ $-\frac{5}{2}x^2 + 3\ln|x-1| + \frac{2}{x} + C$

c) ○ $\frac{5}{2}x^2 + x - 2\ln|x| + 7\ln|x-1| + \frac{2}{x} + C$

d) $5x - 2\ln|x| + 7\ln|x-1| + \dfrac{2}{x} + C$

e) $\dfrac{5}{2}x^2 + x - 2\ln|x| + \dfrac{2}{x} + C$

Question 3

You did not answer the question.

Calculate the integral.

$$\int \frac{3x^2 + 9}{x\left(x^2 - 3\right)}\, dx$$

a) $x\ln|x| - \ln\left|x^2 - 3\right| + C$

b) $-3\ln|x| + 3\ln\left|x^2 + 3\right| + C$

c) $-3\ln|x| + x\ln\left|x^2 - 3\right| + C$

d) $-3\ln|x| + 3\ln\left|x^2 - 3\right| + C$

e) $\ln|x| + x\ln\left|x^2 + 3\right| + C$

Question 4

You did not answer the question.

Calculate the integral.

$$\int \frac{4x + 48}{x^2 - 12x + 11}\, dx$$

a) $-\dfrac{46}{5}\ln|x-11| + \dfrac{26}{5}\ln|x-1| + C$

b) $\dfrac{92}{15}\ln|x-11| - \dfrac{52}{15}\ln|x-1| + C$

c) $-\dfrac{69}{5}\ln|x-11| + \dfrac{39}{5}\ln|x-1| + C$

d) $\dfrac{46}{5}\ln|x-11|-\dfrac{26}{5}\ln|x-1|+C$

e) $\dfrac{92}{5}\ln|x-11|-\dfrac{52}{5}\ln|x-1|+C$

Question 5

You did not answer the question.

Calculate the integral.

$$\int \frac{2}{8\,x^2+16\,x+16}\,dx$$

a) $-\dfrac{1}{4}\arcsin(x+1)+C$

b) $\dfrac{1}{4}\arctan(x+1)+C$

c) $\dfrac{1}{4}\text{arccot}(x+1)+C$

d) $2\left(8\,x^2+16\,x+16\right)^{3/2}+C$

e) $\dfrac{32\,x}{\left(8\,x^2+16\,x+16\right)^2}+C$

Question 6

You did not answer the question.

Calculate the integral.

$$\int \frac{4\,x^2}{(x-6)^2\,(x+6)}\,dx$$

a) $\ln|x+6|-\dfrac{12}{x-6}+\ln|x-6|+C$

b) $-\ln|x+6|-\dfrac{12}{x-6}-3\ln|x-6|+C$

c) $\quad \ln |x + 6| - \dfrac{12}{x - 6} + 3 \ln |x - 6| + C$

d) $\quad \ln |x + 6| - \dfrac{12}{(x - 6)^2} + 3 \ln |x - 6| + C$

e) $\quad 2 \ln |x + 6| - \dfrac{12}{x - 6} - \ln |x - 6| + C$

Question 7

You did not answer the question.

Calculate the integral.

$$\int \frac{5}{x^4 - 16}\, dx$$

a) $\quad -\dfrac{5}{16} \arctan\left(\dfrac{1}{2} x\right) + \dfrac{5}{16} \ln \left|\dfrac{x + 2}{x - 2}\right| + C$

b) $\quad -\dfrac{5}{16} \operatorname{arccot}\left(\dfrac{1}{5} x\right) + \dfrac{5}{32} \ln \left|\dfrac{x - 2}{x + 2}\right| + C$

c) $\quad -\dfrac{5}{16} \operatorname{arccot}\left(\dfrac{1}{2} x\right) - \dfrac{5}{16} \ln \left|\dfrac{x - 2}{x + 2}\right| + C$

d) $\quad -\dfrac{1}{16} \arctan\left(\dfrac{1}{5} x\right) + \dfrac{1}{32} \ln \left|\dfrac{x + 2}{x - 2}\right| + C$

e) $\quad -\dfrac{5}{16} \arctan\left(\dfrac{1}{2} x\right) + \dfrac{5}{32} \ln \left|\dfrac{x - 2}{x + 2}\right| + C$

Question 8

You did not answer the question.

Calculate the integral.

$$\int \frac{3x + 3}{x^3 + x^2}\, dx$$

a) $\quad 3 \ln |x + 1| - \dfrac{3}{x} + C$

b) $\quad 2\ln - \dfrac{1}{x} + C$

c) $\quad C$

d) $\quad -\dfrac{3}{x} + C$

e) $\quad -\dfrac{3}{x} + 3\ln|x| + C$

Question 9

You did not answer the question.

Evaluate the integral.

$$\int_0^2 \frac{x}{x^2 + 8x + 7}\,dx$$

a) $\quad -\dfrac{7}{4}\ln(7) + \dfrac{13}{4}\ln(3)$

b) $\quad -\dfrac{7}{2}\ln(7) + \dfrac{13}{2}\ln(3)$

c) $\quad -\dfrac{7}{6}\ln(7) + \dfrac{13}{6}\ln(3)$

d) $\quad -\dfrac{7}{3}\ln(7) + \dfrac{13}{3}\ln(3)$

e) $\quad -\dfrac{7}{9}\ln(7) + \dfrac{13}{9}\ln(3)$

Question 10

You did not answer the question.

Evaluate the integral.

$$\int_1^3 \frac{1}{x^3 + 6x}\,dx$$

a) $\frac{1}{8} \ln(7) - \frac{1}{8} \ln(5) + \frac{1}{8} \ln(3)$

b) $\frac{1}{12} \ln(7) - \frac{1}{12} \ln(5) + \frac{1}{12} \ln(3)$

c) $\frac{1}{4} \ln(7) - \frac{1}{4} \ln(5) + \frac{1}{4} \ln(3)$

d) $\frac{1}{18} \ln(7) - \frac{1}{18} \ln(5) + \frac{1}{18} \ln(3)$

e) $\frac{1}{6} \ln(7) - \frac{1}{6} \ln(5) + \frac{1}{6} \ln(3)$

Question 11

You did not answer the question.

Calculate the integral.

$$\int \frac{\cos(x)}{(\sin(x))^2 - 3\sin(x) - 10} \, dx$$

a) $-\frac{1}{7} \ln\left|\frac{\sin(x)}{\sin(x) + 2}\right| + C$

b) $\frac{1}{7} \ln\left|\frac{\sin(x) - 2}{\sin(x) + 5}\right| + C$

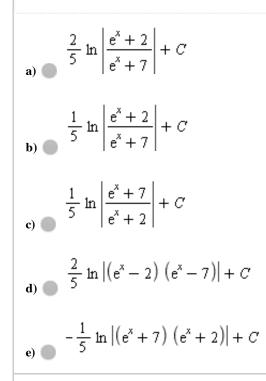c) $\frac{1}{7} \ln\left|\frac{\sin(x) - 5}{\sin(x) + 2}\right| + C$

d) $\frac{1}{7} \ln\left|\frac{\sin(x) + 2}{\sin(x) - 5}\right| + C$

e) $\frac{2}{7} \ln\left|\frac{\sin(x) - 5}{\sin(x) + 2}\right| + C$

Question 12

You did not answer the question.

Calculate the integral.

$$\int \frac{e^x}{e^{2x} + 9e^x + 14} \, dx$$

a) $\dfrac{2}{5}\ln\left|\dfrac{e^x + 2}{e^x + 7}\right| + C$

b) $\dfrac{1}{5}\ln\left|\dfrac{e^x + 2}{e^x + 7}\right| + C$

c) $\dfrac{1}{5}\ln\left|\dfrac{e^x + 7}{e^x + 2}\right| + C$

d) $\dfrac{2}{5}\ln\left|(e^x - 2)(e^x - 7)\right| + C$

e) $-\dfrac{1}{5}\ln\left|(e^x + 7)(e^x + 2)\right| + C$

Question 13

You did not answer the question.

Estimate the given integral by the midpoint estimate, n = 12.

$$\int_0^6 2\,x^2\,dx$$

a) 158

b) 151

c) 144

d) 130

e) 137

Question 14

You did not answer the question.

Estimate the given integral by the trapezoidal rule, n = 12.

$$\int_0^6 4\,x^2\,dx$$

a) ● 303

b) ● 260

c) ● 318

d) ● 289

e) ● 275

Question 15

Estimate the given integral by the trapezoidal rule, n = 5.

$$\int_0^1 \sin^2\left(\frac{1}{5}\,\pi\,x\right)\,dx$$

a) ● 0.0738

b) ● 0.0984

c) ● 0.123

d) ● 0.1722

e) ● 0.1476

Question 16

Estimate the given integral by the trapezoidal rule, n = 4.

$$\int_0^2 \frac{1}{\sqrt{4+x^3}}\,dx$$

a) ● 0.6808

b) ● 0.851

c) ● 1.0212

d) ⚪ 0.7659

e) ⚪ 0.9361

Question 17

You did not answer the question.

Estimate the given integral by Simpson's rule, n = 4.

$$\int_0^1 \frac{1}{\sqrt{2+x^3}}\, dx$$

a) ⚪ 0.8028

b) ⚪ 0.669

c) ⚪ 0.5352

d) ⚪ 0.6021

e) ⚪ 0.7359

Question 18

You did not answer the question.

Determine the values of n which guarantee a theoretical error less than $\varepsilon = 0.001$ if the integral is estimated by the trapezoidal rule.

$$\int_1^4 \sqrt{x}\, dx$$

a) ⚪ $n \geq 25$

b) ⚪ $n \geq 22$

c) ⚪ $n \geq 24$

d) ⚪ $n \geq 26$

e) ⚪ $n \geq 27$

Question 19

Determine the values of n which guarantee a theoretical error less than $\varepsilon = 0.1$ if the integral is estimated by the trapezoidal rule.

$$\int_1^3 e^x \, dx$$

a) ○ $n \geq 15$

b) ○ $n \geq 10$

c) ○ $n \geq 11$

d) ○ $n \geq 14$

e) ○ $n \geq 12$

Question 20

Determine the values of n which guarantee a theoretical error less than $\varepsilon = 0.01$ if the integral is estimated by the trapezoidal rule.

$$\int_3^{e^2} \ln(x) \, dx$$

a) ○ $n \geq 10$

b) ○ $n \geq 11$

c) ○ $n \geq 9$

d) ○ $n \geq 12$

e) ○ $n \geq 7$