

Started on

Monday, 19 February 2024, 9:20 PM

State

→ Finished

Completed on

**Saturday, 24 February 2024, 3:01 PM** 

Time taken

4 days 17 hours

Marks

**11.00/11.00** 

Grade

10.00 out of 10.00 (100%)

**Question 1** 

Complete

Mark 1.00 out of 1.00

Express the integrand as a sum of partial fractions and evaluate the integral.

$$\int \frac{140}{t^3 + 3t^2 - 10t} dt$$

A. 
$$-\frac{14}{t} + 10\ln|t-2| + 4\ln|t+5| + C$$

C. 
$$-14 \ln |t| + 10 \ln |t-2| + 4 \ln |t+5| + C$$

D. 
$$-14 \ln |t| + 10 \ln |t^2 - 2| + C$$

Express the integrand as a sum of partial fractions and evaluate the integral.



Select one:

- A.  $\frac{1}{8x} + \frac{1}{16} \ln \left| \frac{x-2}{x+2} \right| + C$
- B.  $\frac{1}{4x} + \frac{1}{8} \ln \left| \frac{x-2}{x+2} \right| + C$
- C.  $\frac{1}{4x} + \frac{1}{16} \ln \left| \frac{x+2}{x-2} \right| + C$
- D.  $\frac{1}{4x} + \frac{1}{16} \ln \left| \frac{x-2}{x+2} \right| + C$

Question 3 Complete

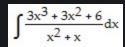
Mark 1.00 out of 1.00

Express the integrand as a sum of partial fractions and evaluate the integral.

$$\int \frac{6x^2 + x + 16}{(x^2 + 3)(x - 2)} \, dx$$

- A.  $6 \ln |x-2| + \tan^{-1} \left( \frac{x\sqrt{3}}{3} \right) + C$
- B.  $6 \ln |x-2| + \frac{1}{3} \tan^{-1} \left(\frac{x}{3}\right) + C$
- C.  $6 \ln |x-2| + \frac{\sqrt{3}}{3} \tan^{-1} \left( \frac{x\sqrt{3}}{3} \right) + C$
- D.  $\ln |x-2| + \frac{\sqrt{3}}{3} \tan^{-1} \left( \frac{x\sqrt{3}}{3} \right) + C$

Evaluate the integral by first performing long division on the integrand and then writing the proper fraction as a sum of partial fractions.



Select one:

- A.  $\frac{3}{2}x^2 6 \ln |x+1| + 6 \ln |x| + C$
- B.  $\frac{3}{2}x^2 + 6 \ln |x-1| 6 \ln |x| + C$
- C.  $3x^2 + 6 \ln |x+1| 6 \ln |x| + C$
- D.  $6 \ln |x+1| 6 \ln |x| + C$

**Question 5** 

Complete

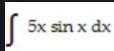
Mark 1.00 out of 1.00

Evaluate the improper integral.



- A. 3
- В. С
- C. 9
- D. -3

Evaluate the integral.



Select one:

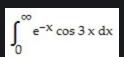
- (a) A.  $5 \sin x 5x \cos x + C$
- B.  $5 \sin x + 5x \cos x + C$
- C.  $5 \sin x x \cos x + C$
- D. 5 sin x 5 cos x + C

**Question 7** 

Complete

Mark 1.00 out of 1.00

Evaluate the improper integral.

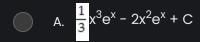


- B. Diverges

Evaluate the integral.

$$\int (x^2 - 4x) e^x dx$$

Select one:



B. 
$$e^{x}[x^2 - 6x - 6] + C$$

C. 
$$e^{x}[x^2 - 4x + 4] + C$$

D. 
$$e^{x}[x^2 - 6x + 6] + C$$

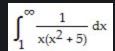
Question 9 Complete Mark 1.00 out of 1.00

Evaluate the improper integral or state that it is divergent.



C. 
$$\frac{\pi}{49}$$

Evaluate the improper integral or state that it is divergent.



Select one:

- A. Divergent
- B.  $\frac{\ln 6}{10}$
- C. In 6
- D. In 4

Question 11

Complete

Mark 1.00 out of 1.00

Evaluate the improper integral.



- A. 4
- C. 1
- **D**.

**←** 

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