

95
11

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Choose T (true) or F (false) for each statement.

1. The integral of $\int (8x+4)(x^2+x)^3 dx$ is $\frac{1}{4}(x^2+x)^4 + C$

F T

2. The integral of $\int 4x\sqrt{2x-3} dx$ is $(2x-3)^{\frac{5}{2}} + (2x-3)^{\frac{3}{2}} + C$

F T

3. The partial fraction decomposition of the integral $\int \frac{x^2+4}{3x^3+4x^2-4x} dx$ is $\frac{A}{x} + \frac{B}{(3x-2)} + \frac{C}{(x+2)}$

F T

4. The integral of $\int \frac{x^2+26x+12}{5x^3+3x^2} dx$ is $-\frac{9}{5}\ln|5x+3| + 2\ln|x| - \frac{4}{x} + C$

F T

5. Solve the following integral, SHOW THE STEPS OF YOUR PROCEDURE.

$\int \frac{2x^3 - 4x^2 - 15x + 5}{x^2 - 2x - 8} dx$

$$\begin{array}{r} 2x \\ x^2 - 2x - 8 \overline{) 2x^3 - 4x^2 - 15x + 5} \\ \underline{-2x^3 + 4x^2 + 16x} \\ x + 5 \end{array}$$

$$\int 2x + \frac{x+5}{x^2-2x-8} dx$$

$$\frac{2x^2}{2} + \left(\frac{\frac{3}{2}}{x-4} - \frac{\frac{1}{2}}{x+2} \right)$$

$$\frac{x^2 - 2x - 8}{x-4} \frac{A}{x-4} + \frac{B}{x+2}$$

$(x+2) + B(x-4)$

$x + 2A + Bx - 4B = x + 5$

$Ax + Bx = x$
 $A + B = 1$
 $A = 1 - B$
 $A = 1 - (-\frac{1}{2}) \Rightarrow A = \frac{3}{2}$

$2A - 4B = 5$
 $2(1-B) - 4B = 5$
 $2 - 2B - 4B = 5$
 $-6B = 3$
 $B = -\frac{1}{2}$

$\frac{2x^3}{3} + \frac{3}{2} \ln|x-4| - \frac{1}{2} \ln|x+2|$ answer

my mistake in this quiz was that I don't know why I wrote 3 rather than 2 during the antiderivative of the first derivative omg

CALCULUS II
QUIZ 2 B 3RD PARTIAL

75

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MULTIPLE CHOICE. Choose the one alternative that best completes the statement or answers the question. (12.5 pts each one)

Evaluate the integral.

L A T E

1) $\int 4xe^x dx$

A) $4xe^x - 4e^x + C$

B) $xe^x - 4e^x + C$

C) $4e^x - e^x + C$

D) $4e^x - 4xe^x + C$

1) A

2) $\int e^{5x} \cos 4x dx$

A) $\frac{e^{5x}}{2} [\sin 4x + \cos 4x] + C$

B) $\frac{1}{41} [4 e^{5x} \sin 4x + 5 \cos 4x] + C$

C) $\frac{e^{5x}}{41} [4 \sin 4x + 5 \cos 4x] + C$

D) $\frac{e^{5x}}{41} [4 \sin 4x - 5 \cos 4x] + C$

2) C

3) $\int (2x-1) \ln(24x) dx$

A) $(x^2 - x) \ln 24x - \frac{x^2}{2} + x + C$

B) $(x^2 - x) \ln 24x - \frac{x^2}{2} + 2x + C$

C) $\left(\frac{x^2}{2} - x\right) \ln 24x - \frac{x^2}{4} + x + C$

D) $(x^2 - x) \ln 24x - x^2 + x + C$

-12.5

$x^2 \ln 24x - \frac{x^2}{2} - x \ln(24x) - x + C$

3) ~~A~~

4) $\int 23x \cos \frac{1}{2}x dx$

A) $23x \sin \left(\frac{1}{2}\right)x - 46 \cos \left(\frac{1}{2}\right)x + C$

B) $46x \sin \left(\frac{1}{2}\right)x + 92 \cos \left(\frac{1}{2}\right)x + C$

C) $92 \sin \left(\frac{1}{2}\right)x - 46x \cos \left(\frac{1}{2}\right)x + C$

D) $23 \sin \left(\frac{1}{2}\right)x + 46x \cos \left(\frac{1}{2}\right)x + C$

4) B

5) $\int e^{2x} x^2 dx$

A) $(1/2)x^2 e^{2x} - (1/4)xe^{2x} + (1/4)e^{2x} + C$

B) $(1/2)x^2 e^{2x} - (1/2)xe^{2x} + (1/4)e^{2x} + C$

C) $(1/2)x^2 e^{2x} - (1/2)xe^{2x} + C$

D) $(1/2)x^2 e^{2x} - xe^{2x} + (1/4)e^{2x} + C$

5) B

6) $\int x^3 \cos 3x \, dx$

6) C

A) $\frac{1}{3}x^3 \sin 3x - \frac{1}{3}x^2 \cos 3x + \frac{2}{9}x \sin 3x + \frac{2}{27} \cos 3x + C$

B) $\frac{1}{3}x^3 \sin 3x + 1x^2 \cos 3x - 2x \sin 3x - 2 \cos 3x + C$

C) $\frac{1}{3}x^3 \sin 3x + \frac{1}{3}x^2 \cos 3x - \frac{2}{9}x \sin 3x - \frac{2}{27} \cos 3x + C$

D) $\frac{1}{3}x^3 \cos 3x + \frac{1}{3}x^2 \sin 3x - \frac{2}{9}x \cos 3x - \frac{2}{27} \sin 3x + C$

7) $\int_0^4 x^4 \ln 9x \, dx$

7) D

A) 774.86

B) -201.22

C) 699.77

D) 692.94

8) $\int (x^2 - 3x) e^x \, dx$

8) DA

A) $e^x[x^2 - 5x + 5] + C$

B) $e^x[x^2 - 5x - 5] + C$

-12.5

C) $e^x[x^2 - 3x + 3] + C$

D) $\frac{1}{3}x^3 e^x - \frac{3}{2}x^2 e^x + C$

sign $\left| \begin{array}{l} u \\ (x^2 - 3x) \end{array} \right| \frac{dv}{e^x}$

⑦ $\int x^4 \ln 9x \, dx$

$u = \ln 9x \quad dv = x^4$
 $du = \frac{9}{9x} = \frac{1}{x} \quad v = \frac{x^5}{5}$

$204.8 - 40.96$

$\ln 9x \cdot \frac{x^5}{5} - \int \frac{x^5}{5} \cdot \frac{1}{x}$

$5 \overline{) 1024}$
 $\underline{10} $
 020
 $\underline{20}$
 040

$\ln 9x \cdot \frac{x^5}{5} - \int \frac{x^4}{5}$

3.58

$\ln 9x \cdot \frac{x^5}{5} - \frac{x^5}{25} \Big|_0^4 = \left[\ln 9(4) \cdot \frac{(4)^5}{5} - \frac{(4)^5}{25} \right] -$

163.84

$\left[\ln 9(20) \cdot \frac{(0)^5}{5} - \frac{(0)^5}{25} \right] + C$

L A T E

Third Partial

$$u = v - \int v \cdot dv$$

QUIZ #2B

$$\textcircled{3} \int (2x-1) \ln(24x) dx$$

$$\int 2x \ln(24x) - \int \ln(24x)$$

$u = \ln(24x) \quad dv = 2x$	$u = \ln(24x) \quad dv = 1$
$du = \frac{1}{x} \quad v = \frac{2x^2}{2}$	$du = \frac{1}{24x} = \frac{1}{x} \quad v = x$

B)

$\ln(24x) \cdot x^2 - \int x^2 \cdot \frac{1}{x}$	$\ln(24x) \cdot x - \int x \cdot \frac{1}{x}$
$\ln(24x) \cdot x^2 - \frac{x^2}{2}$	$x \ln(24x) - x$

$$\ln(24x) \cdot x^2 - \frac{x^2}{2} -$$

L A T E

$$\textcircled{4} \int (x^2 - 3x) e^x dx$$

$$\int x^2 e^x - \int 3x e^x$$

$u = x^2 \quad dv = e^x$	$u = 3x \quad dv = e^x$
$du = 2x \quad v = e^x$	$du = 3 \quad v = e^x$

$$3x \cdot e^x - \int e^x \cdot 3$$

$$3x \cdot e^x - 3e^x$$

~~$$3x \cdot e^x - \int e^x \cdot 3$$~~

Sign	u	dv
+	x^2	e^x
-	$2x$	e^x
+	2	e^x
+	$3x$	e^x
-	3	e^x

$$\left[(x^2 \cdot e^x) - (2x \cdot e^x) + 2e^x \right] -$$

$$\left[3x \cdot e^x + 3e^x \right] + c$$

$$e^x [x^2 - 2x + 2 - 3x + 3]$$

$$e^x [x^2 - 5x + 5] + c$$