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1. **(1 point)** Library/UCSB/Stewart5_7_5/Stewart5_7_5_65.pg

Evaluate the integral

$$\int \frac{10}{\sqrt{x+1}+\sqrt{x}}\,dx$$

Note: Use an upper-case "C" for the constant of integration.

Correct Answers:

- 10*2/3*((x+1)^(3/2)-x^(3/2))+C+c

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2. **(1 point)** Library/Union/setIntByParts/sc5_6_01.pg

Evaluate the indefinite integral.

$\int xe^{3x}\,dx =$ _____ $+C.$

Correct Answers:

- 1/3*[x*e^(3*x)-1/3*e^(3*x)]

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3. **(1 point)** Library/UCSB/Stewart5_7_1/Stewart5_7_1_21.pg

Evaluate the following integral:

$$\int_1^2 \frac{3\ln(x)}{x^2}\,dx$$

Correct Answers:

- 3*(1/2-1/2*ln(2))

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4. **(1 point)** Library/UCSB/Stewart5_7_1/Stewart5_7_1_22.pg

Evaluate the following integral:

$$\int_1^4 1\sqrt{t}\ln(t)\,dt$$

Correct Answers:

- 1*(16/3*ln(4)-28/9)

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5. **(1 point)** Library/UCSB/Stewart5_7_1/Stewart5_7_1_23.pg

Evaluate the integral

$$\int_0^1 \frac{-8y}{e^{2y}}\,dy$$

Correct Answers:

- -3/4*exp(-2)*-8+1/4*-8

6. **(1 point)** Library/UCSB/Stewart5_7_4/Stewart5_7_4_50.pg

Use integration by parts and the technique of partial fractions to evaluate the integral

$$\int -3x\arctan(x)\,dx$$

Note: Use an upper-case "C" for the constant of integration.

Correct Answers:

- `1/2*-3*x^2*arctan(x)-1/2*-3*x+1/2*-3*arctan(x)+C+c`

7. **(1 point)** Library/UCSB/Stewart5_7_1/Stewart5_7_1_33.pg

First make a substitution and then use integration by parts to evaluate the integral

$$\int -7\sin(\sqrt{x})\,dx$$

Note: Use an upper-case "C" for the constant of integration.

Correct Answers:

- `-2*-7*sqrt(x)*cos(sqrt(x))+2*-7*sin(sqrt(x))+C+c`

8. **(1 point)** Library/UCSB/Stewart5_7_2/Stewart5_7_2_54.pg

The integral

$$\int -7\sin(x)\cos(x)\,dx$$

can be evaluated in four different ways:
(1) The substitution $u = \cos(x)$
(2) The substitution $u = \sin(x)$
(3) The identity $\sin(2x) = 2\sin(x)\cos(x)$
(4) Integration by parts
Use any of these methods to evaluate the integral.
Note: Use an upper-case "C" for the constant of integration.

Correct Answers:

- `-7/2*sin(x)^2+C+c`

9. **(1 point)** Library/UCSB/Stewart5_7_1/Stewart5_7_1_34.pg

First make a substitution and then use integration by parts to evaluate the integral

$$\int_1^4 10e^{\sqrt{x}}\,dx$$

Correct Answers:

- `10*2*exp(2)`

10. **(1 point)** Library/Michigan/Chap7Sec2/Q38.pg

For each of the following integrals, indicate whether integration by substitution or integration by parts is more appropriate, or if neither method is appropriate. Do not evaluate the integrals.

1. $\int x\sin x\,dx$

- A. substitution
- B. integration by parts
- C. neither

2. $\int \frac{x^4}{1+x^5}\,dx$

- A. substitution
- B. neither
- C. integration by parts

3. $\int x^4 e^{x^5}\,dx$

- A. substitution
- B. integration by parts
- C. neither

4. $\int x^4\cos(x^5)\,dx$

- A. substitution
- B. neither
- C. integration by parts

5. $\int \frac{1}{\sqrt{2x+1}}\,dx$

- A. substitution
- B. integration by parts
- C. neither

(Note that because this is multiple choice, you will not be able to see which parts of the problem you got correct.)

Solution: *(Instructor solution preview: show the student solution after due date.)*

SOLUTION

For each of these, we're looking to see if there is a good substitution (we can take w to be the argument of a function, etc., such that its derivative, $dw = w'\,dx$, appears in the integrand; or, if the function looks like one on which integration by parts is good. We see that:

1. For $\int x\sin x\,dx$, integration by parts is appropriate, because by taking $u = x$ and $v' = \sin(x)$, we end up with an integral that is easy to find.

2. For $\int \frac{x^4}{1+x^5}\,dx$, substitution is appropriate, because by taking $w = 1+x^5$ we get an integral we can find.

3. For $\int x^4 e^{x^5}\,dx$, substitution is appropriate, because by taking $w = x^5$ we get an integral we can find.

4. For $\int x^4\cos(x^5)\,dx$, substitution is appropriate, because by taking $w = x^5$ we get an integral we can find.

5. For $\int \frac{1}{\sqrt{2x+1}}\,dx$, substitution is appropriate, because by taking $w = 2x+1$ we get an integral we can find.

Correct Answers:

- B
- A
- A
- A
- A