6.11 Integration by Parts

Calculus Name: _____ **CA #2**

Find the integral.

1. $\int x\csc^2 x\, dx$

2. $\int \frac{x}{4} e^x dx$

3. $\int_1^3 2x \ln x\, dx$

4. $\int 6x \ln x\, dx$

5. $\int 4xe^{3x+2} dx$

6. The function f has a continuous derivative. The table gives the values of f and its derivatives for $x = 1$ and $x = 6$. If $\int_1^6 f(x)\, dx = 9$, what is the value of $\int_1^6 3xf'(x)\, dx$?

x	$f(x)$	$f'(x)$
1	2	4
6	8	-3

Answers to 6.11 CA #2

1. $-x\cot x + \ln\lvert\sin x\rvert + C$	2. $\frac{x}{4}e^x - \frac{1}{4}e^x + C$	3. $9\ln 3 - 4$
4. $3x^2 \ln x - \frac{3}{2}x^2 + C$	5. $\frac{4}{3}xe^{3x+2} - \frac{4}{9}e^{3x+2} + C$	6. 111