

Math 199 CD3 Merit Worksheet 2: Integration by parts

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After u substitution, integration by part is the next important technique that you need to master. A personal tip I can give for this technique is always try to look for terms that are easier for integrating first, i.e. the dv part. It could be slow at first but once you develop enough intuition you will be able to go quite far. Good luck and have fun with the worksheet!!!!!!!!!!

1.

$$\int x^2 e^{-x} dx$$

2.

$$\int e^x \sin x dx$$

3.

$$\int e^{ax} \cos(bx) dx$$

4.

$$\int \cos^3(x) dx$$

5.

for $n \geq 2$

$$\int \cos^n x dx$$

6.

$$\int x \sec^2 x dx$$

7.

$$\int x^2 \arctan x dx$$