MATH 5B - Single Variable Calculus II — Spring 2019

§7.1 Integration by Parts

In-class Activity 7.1

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Activity 1:

Evaluate using IBP:

(a) $\int xe^x \, dx$

(b) $\int t^2 \sin(t) \, dt$

Activity 2:

Evaluate using IBP:

(a) $\int_1^3 \ln(x)\,dx$

(b) $\int_0^1 \tan^{-1}(x)\,dx$

Activity 3:

Evaluate using IBP: $\int \cos(x)e^x \, dx$

In this activity, it feels like you go around in a circle.
You'll do IBPs twice and come back to the original integral. If we set $I = \int \cos(x)e^x \, dx$, then you can re-arrange to get $2I$ (after 2 IBPs).
So I call this the "$2I$-trick."

Activity 4:

Use the reduction formula to evaluate: $\int \sin^3(x)\,dx$