MAT 137 (Calculus II) Prof. Swift

In-class worksheet: Which Technique?

For each of these integrals, circle either A, S, P, or ?. Then do the indicated step.

(A) Algebraic simplification. Write down the simplified integral. (Don't evaluate it.)

(S) u-substitution. Write down u, and compute du.

(P) Integration by Parts. Write down u and dv.

(?) We don't yet know how to do such integrals.

Practice: A S P ? $\int e^x \sin(e^x)\,dx$ Answer: circle S, then write $u = e^x$, $du = e^x dx$.

1. A S P ? $\int \dfrac{x^2-1}{x}\,dx$

2. A S P ? $\int \ln(x)\,dx$

3. A S P ? $\int x\sin(x^2)\,dx$

4. A S P ? $\int \exp(-x^2)\,dx = \int e^{-x^2}\,dx$

5. A S P ? $\int x\exp(2x)\,dx$

6. A S P ? $\int \dfrac{\sin(3x)}{\sqrt{1-\cos^2(3x)}}\,dx$