

## Math 1A Worksheet 26

April 18th, 2008

1. Find antiderivatives for:
  - a)  $f(x) = \sin x + x \cos x$ ,
  - b)  $f(x) = 2x \cos x^2$ ,
  - c)  $f(x) = \cosh x$ .
2. A particle moves with acceleration  $a(t) = \cos t + \sin t$  and initial position and velocity  $s(0) = 0$  and  $v(0) = 5$ . Find a formula for the position of the particle at time  $t$ .
3. Sketch the graph of  $f(x) = \cos^2 x$ . Then sketch the graph of the antiderivative  $F$  of  $f$  based *only* on the graph of  $\cos^2 x$ , using the initial condition  $F(0) = 0$ .
4. Find all infinitely-differentiable functions  $f$  such that  $f'' = f'''$ .