MATH 116-028 QUIZ 4 / 29 Jan 2008 Name:_____

1. Find, by hand: $\int \frac{e^x}{4e^{2x}-1}\,dx$. (3 points)

2. For each of the following integrals, indicate which of **substitution**, **integration by parts**, **long division**, **partial fractions**, a **table** of integrals, or **no method** would be the logical *first step* toward finding the integral. Do not find any of these integrals. (3 points)

a. $\int \arctan(x)\,dx$ **b.** $\int \frac{1}{3+(2z+1)^2}\,dz$ **c.** $\int \frac{\cos(\sqrt{x})}{\sqrt{x}}\,dx$

3. An enterprising calculus student, intrigued by the amount of fun that her calculus class is having, does a careful investigation of the joy, J, being experienced by the class during a typical class period. The graph gives J (in deleriums/hour, the usual unit) for the 1.5 hour class period. Estimate with MID(3) the total number of deleriums of joy experienced by the class. Is your estimate an over- or under-estimate? (4 points)