

## Test #1 Topics

1. Be able to compute indefinite and basic definite and indefinite integrals including using *u*-substitution, as well as polynomials sums of simple functions, powers,  $\frac{1}{x}$ ,  $\sin ax$ ,  $\cos ax$ ,  $\sec^2 ax$ ,  $e^{ax}$ .
2. Applications of the integral to computing area under a curve, including when it crosses the axis.
3. Solving initial value problems such as obtaining a position or velocity function from acceleration, velocity and initial position.
4. Numerical integration including left, right, upper, lower, midpoint and trapezoidal rules. Be able to draw the associated approximating areas and compute the approximation for a specific function. Also be able to find the approximation for tabular data.