MATH 2300-015 QUIZ 1 Name: _____

1. Integrate the following with a substitution, $\int f(u(x))u'(x)dx = \int f(u)du$.

   (a) $\displaystyle\int \frac{dx}{x^2+2x+2}$ (Hint: complete the square in the denominator first.)

   (b) $\displaystyle\int_0^{\pi/3} \sec^3\theta \tan\theta d\theta$

2. Integrate the following by parts, $\int udv = uv - \int vdu$.

   (a) $\int \frac{3x}{e^{2x}} dx$

   (b) $\int_1^e \ln x dx$

3. Integrate $\int \arcsin z dz$ (Hint: integrate by parts using $u = \arcsin z$, $dv = dz$, then use a substitution on the resulting integral.)