For the week of September 22-26

1. Integration by substitution tells us that $\int f'(u(x))u'(x)dx = f(u(x)) + C$. For each of the following integrals, identify $f(x), u(x)$ and $u'(x)$, then evaluate the integral. You may need to rewrite the integral in a different form to identify $u'(x)$.

   (a) $\int t(t^2 - 8)^{10}dt$

   (b) $\int xe^{2x^2}dx$

   (c) $\int \frac{y}{y^2+4}dy$

2. Evaluate the following integrals using substitution.

   (a) $\int (x + 5)^2 dx$