NAME: _____

1. Decide whether or not the following integrals converge or diverge. If they converge, find their values.

   (a) $\displaystyle\int_{-\infty}^{0} \frac{1}{\sqrt{3-x}}dx$

   (b) $\displaystyle\int_{-\infty}^{\infty} xe^{-x^2}dx$

   (c) $\displaystyle\int_{0}^{\infty} \sin(x)dx$

   (d) $\displaystyle\int_{-\infty}^{\infty} \frac{1}{x^4}dx$

2. Use trig substitution to evaluate the following indefinite integrals.

(a) $\int \sin^5(x)\cos^9(x)dx$

(b) $\int \cos^4(x)\sin^2(x)dx$

(c) $\int \tan^2(x)\sec^6(x)dx$

3. Evaluate the indefinite integral $\int \frac{2x-1}{x^2-2x+3}dx$, by eventually using the trig sub: $u = \sqrt{2}\tan(\theta)$.