Math 2300-013: Quiz 3b

Name: _____ Score: _____

1. (2 points) Determine which of the following are improper integrals, and circle the letter to the left of each improper integral.

   (a) $\displaystyle\int_{-\infty}^{\infty} xe^{-x}\,dx$

   (b) $\displaystyle\int_{-3}^{4} \frac{1}{1-\sqrt{|x|}}\,dx$

   (c) $\displaystyle\int_{-\infty}^{-1} x^{-1}\,dx$

   (d) $\displaystyle\int_{0}^{\pi} \sec x\,dx$

2. (2 points) Use a trigonometric substitution to re-write the following integral in terms of trigonometric functions. **Do not evaluate the integral.**

   $$\int \frac{x^2}{(x^2+3)^{5/2}}\,dx$$

3. (4 points) Evaluate $\displaystyle\int \frac{2x^2 + 7x - 1}{(x-1)(x+1)^2}\,dx$.