MA126 Quiz 5

Name:

1) (8 pts) Evaluate the following integral (if it converges)

$$\int_{\frac{1}{2}}^{1} \frac{dx}{\sqrt{2x-1}}$$

2) (8 pts) Use the Comparison Theorem to determine whether the following integral is convergent or divergent when a is a positive constant. (**DO NOT** evaluate the integral):

$$\int_{1}^{\infty} a \cdot \frac{\cos^2 x}{1+x^2}\, dx$$

(OVER)

3) (9 pts) Determine whether the following improper integral converges when a is a positive constant. If the integral does converge, find its value.

$$\int_0^\infty \frac{dx}{(\sqrt{1+ax})^3}$$