

NAME: _____

MATH 12003

HOMEWORK #3 (9 pts)

FALL 2009

SHOW ALL WORK FOR FULL CREDIT — PLEASE CIRCLE YOUR FINAL ANSWER

DUE: TUESDAY, SEPTEMBER 29, 2009 AT THE BEGINNING OF CLASS

1. (2 pts) Use the Comparison Theorem to determine whether the following integral is convergent or divergent.

$$\int_1^{\infty} \frac{x}{\sqrt{1+x^6}} dx$$

2. Determine whether each integral is convergent or divergent. Evaluate those that are convergent.

(a) (2 pts) $\int_0^2 \frac{1}{5(2x-3)} dx$

(b) (2 pts) $\int_0^{\infty} \frac{1}{x^2 + 3x + 2} dx$

(c) (3 pts) $\int_0^1 \frac{\ln x}{\sqrt{x}} dx$