

Math 2300-013: Quiz 3c

Name: _____

Score: _____

1. (3 points) For each of the following improper integrals, determine whether the integral converges or diverges. Circle your answer. **Note: you do not need to compute the values of the integrals.**

(a) Converges Diverges $\int_1^{\infty} \frac{2}{x} dx$

(b) Converges Diverges $\int_0^1 \frac{1}{x+1} dx$

(c) Converges Diverges $\int_3^{\infty} \frac{1}{x^2+x+1} dx$

(d) Converges Diverges $\int_{-\infty}^{\infty} \frac{1}{x^2+4} dx$

(e) Converges Diverges $\int_0^1 \frac{5}{\sqrt{x}} dx$

(f) Converges Diverges $\int_1^{\infty} \frac{\sqrt{x}+8}{x} dx$

2. (1 point) For **one** of the improper integrals above, explain how you know the integral converges/diverges.

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