

Math 222, Quiz 4

Name:

Time: 11:00 12:05

Instructions: Answer all the questions fully, showing work where necessary. Please circle your answer.

1) Determine whether the following integral converges or diverges. If it converges, evaluate it:

a) $\int_9^{\infty} \frac{x \, dx}{\sqrt{1+x^2}}$

There are several ways to see that this diverges. One is to see that the limit of the function as $x \rightarrow \infty$ is not equal to 0. Another is to simply evaluate it, and see that it diverges (make a substitution for $1 + x^2$. At any rate, it diverges.

2) Determine whether the following integral converges or diverges (you do not need to evaluate it):

$$\int_2^{\infty} \frac{x}{\sqrt{x^4-1}} dx$$

This function also diverges. Do a comparison to $\frac{1}{x}$.

Bonus (1 pt.): Which album has sold more: Kanye West's "Graduation" or 50 Cent's "Curtis"?

Graduation has sold more.