AP Calculus BC Name:

Homework 7'.3

1. Determine if $\sum_{n=1}^{\infty} \frac{1}{3^n + 2}$ converges and justify your answer.

2. Determine if $\sum_{n=1}^{\infty} (-1)^n \frac{(n-1)^5}{(n+1)^5}$ converges absolutely, converges conditionally, or diverges and justify your answer

3. Write the first four terms and the general term for the power series representation of $\frac{\ln(1+x^2)}{x}$.

One more problem on the back!!!

4. The path of a particle is given by the following set of parametric equations

$$x = 3\cos(2t) \qquad y = 1 + \cos^2(2t)$$

Completely describe the path of this particle by writing its equation in terms of x and y only, then sketching the path with its direction, determining limits on *x* and *y* and giving a range of *t*'s for which the path will be traced out exactly once (provide it traces out more than once).