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| Test 2Dusty Wilson Math 153No work = no creditNo Symbolic Calculators | **Name:** \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_*Notable enough, however, are the controversies over the series 1 - 1 + 1 - 1 + 1 - ... whose sum was given by Leibniz as 1/2, although others disagree. ... Understanding of this question is to be sought in the word "sum"; this idea, if thus conceived -- namely, the sum of a series is said to be that quantity to which it is brought closer as more terms of the series are taken -- has relevance only for convergent series, and we should in general give up the idea of sum for divergent series.*Leonard Euler (1707 - 1783) Swiss mathematician |
| Warm-ups (1 pt each): | =\_\_\_\_\_ | =\_\_\_\_\_ | =\_\_\_\_\_ |

(1 pt) According to Euler, what mathematician struggled to understand 1-1+1-1+…? Answer using complete English sentences.

(10 pts) Does diverge? If not, is it conditionally or absolutely convergent? Justify your answer.

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(10 pts) Write  as the ratio of two integers (as a fraction).

(10 pts) Find the equation of the tangent line to the curve parameterized by  and  at the point .

(10 pts) Set up an integral to represent the length of the curve  and  on .

Note: You may evaluate the integral to verify the arclength is 

(10 pts) Set up an integral to find the area shared by the circle  and the cardiod .

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