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| Assessment 3Dusty Wilson Math 254 No work = no credit **No CAS Calculators** | **Name**: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  *Whenever an infinite series is obtained as the development of some closed expression* [formula for a function], *it may be used in mathematical operations as the equivalent of that expression, even for values of the variable for which the series diverges.* Leonhard Euler 1707 – 1783 (Swiss Mathematician) |

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| Warm-ups (1 pt each): | =\_\_\_\_\_ | =\_\_\_\_\_ | =\_\_\_\_\_ |

(1 pt) The quote by Euler (above) is a foreshadow of a later topic in this class. According to Euler, when was it acceptable to use divergent series? Answer using complete English sentences.

(8 pts) Consider the points , , and .

1. Find symmetric equations for the line that includes points *A* and *B*.
2. Find the equation of the plane that includes points *A*, *B*, and *C*.

(4 pts) Complete the following

1. Find the parametric equations for the line through the point  and perpendicular to both  and .

(4 pts) Consider the parametric equations  and .

1. Eliminate the parameter to find a Cartesian equation of the curve.
2. Keeping in mind the original parametric equations, what is the domain of your Cartesian equation?