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| Assessment 7Dusty Wilson Math 254No work = no credit**No CAS Calculators** | **Name**: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_*I believe the true measure of a person is whether you have learnt to sacrifice yourself in the service of others.*Musa Manziborn in 1984 (South African Geoscientist) |

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| Warm-ups (1 pt each): | Centroid of the unit sphere (assuming uniform density) =\_\_\_\_ |  Expand  =\_\_\_\_\_ |

(1 pt) The quote by Manzi (above) is from the professor in the video this week. How does Manzi assess value in himself/others? Answer using complete English sentences.

(10 pts) Find the work done by the force field  on a particle the moves along the line segment from  to .

(10 pts) Find the gradient vector field  of  and sketch it. Note: Sketch vectors at all BIG dots. The vectors may extend off the grid.



(10 pts) Use a change of variables to evaluate  where *R* is the region bounded by 

 