

Homework 2: Two dimensional integrals and  
derivatives  
( **Due Friday October 5**  
**Total points= 120**)

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September 26, 2018

1 THE GRAVITATIONAL PULL OF A GALAXY (**40 POINTS**)

**Do Exercise 5.14, parts (a) and (b),** using the two-dimensional trapezoidal method.

2 THE ELECTRIC FIELD OF A CHARGE DISTRIBUTION (**60 POINTS**)

**Do Exercise 5.21**

3 HEAT CAPACITY (**20 POINTS**)

Using the  $E_3$  data of HW2, **calculate** the heat capacity  $C(T) = \frac{dE_3}{dT}$  and plot  $C(T)$  as a function of T. **Find**  $C_{max}$  and the corresponding temperature.