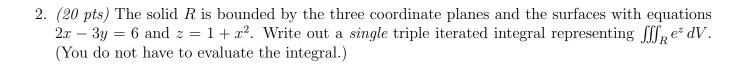
EXAM 2

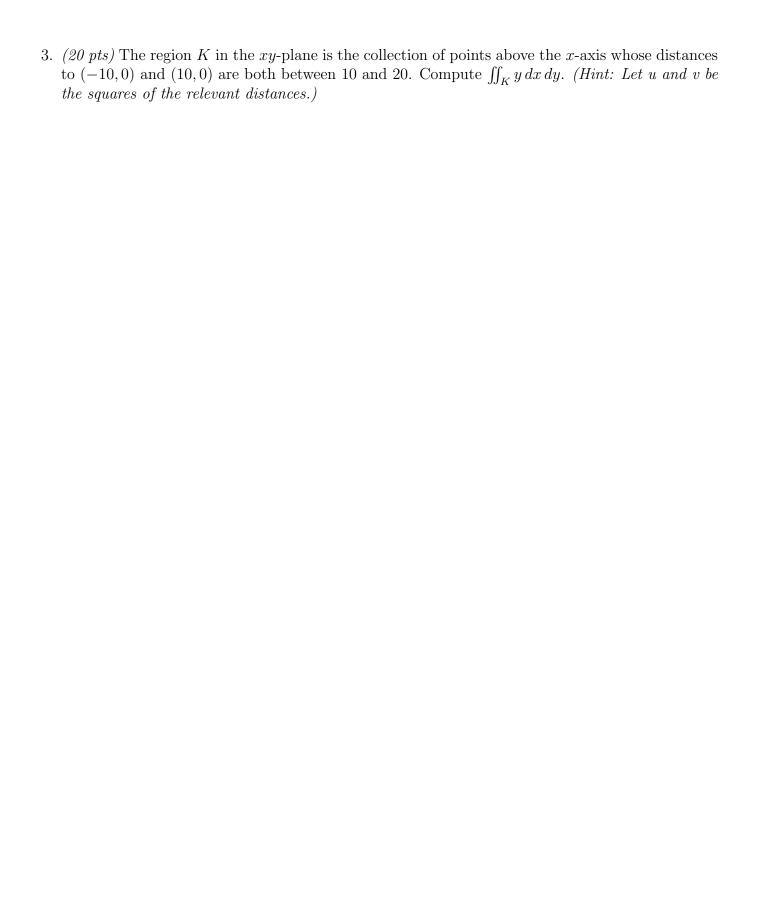
Math 212, 2021 Fall, Clark Bray.

Name:	Section:	Student ID:
GENERAL RULES		
YOU MUST SHOW ALL WORK AND EXPLAIN ALL CLARITY WILL BE CONSIDERED IN GRADING.	REASONING	G TO RECEIVE CREDIT.
No notes, no books, no calculators.		
All answers must be reasonably simplified.		
All of the policies and guidelines on the class webpages	are in effect on	this exam.
WRITING RULES		
Do not write anything near the staple – this will be cut	off.	
Use black pen only. You may use a pencil for initial sket drawn over in black pen and you must wipe all erasure r	_	
Work for a given question can be done ONLY on the fro on. Room for scratch work is available on the back of the the end of this packet; scratch work will NOT be graded	his cover page,	
DUKE COMMUNITY STANI	DARD STAT	EMENT
"I have adhered to the Duke Community Stand	ard in complet	ing this examination."
Signature:		

- 1. (20 pts) The region D is bounded by $y=2x^2$ and $y=1+x^2$, and mass is distributed across D as indicated by the density $\delta(x,y)=e^{x^2}+y^{13}$.
 - (a) Write iterated integrals representing the coordinates of the centroid of this mass (leaving the mass written as "m").

(b) Evaluate ONE of the integrals above using any methods from this course.





4. (20 pts) The solid T is defined by $x^2 + y^2 + z^2 \le 2$ and $z \ge x^2 + y^2$. Compute the volume of T.

5. (20 pts) The surface S is the part of $z=4-x^2-4y^2$ that is above the xy-plane. Ants are crawling on S with the number of ants per unit area given by $\delta(x,y,z)=z^2$. Write out (but do not evaluate) a single iterated integral representing the total number of ants on S.