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CALCULUS II	2017 Fall Semester Final Exam	* Your answer must be provided with descriptions how to get the answer.	1. (4 points) Find the absolute maximum and minimum values of the function $f(x,u) = x^2 + xy + y^2$ on the disk	? ;							

3. (3 points) Evaluate the double integral $\iint_D ye^x dA$ where $D = \{(x,y) \colon x \ge 0, \ y \ge 0, \ x^2 + y^2 \le 25\}$.

5. (4 points) Find the area of the surface that is enclosed by two paraboloids $z=8-x^2-y^2$ and $z=x^2+y^2$.

4. (3 points) Find the volume of the solid that lies under $x^2+y^2+z^2=4a^2$, above the xy-plane, and inside $r=2a\cos\theta$, (a>0).

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the curve $4x^2+y^2=4$ oriented in clockwise direction from equations or vector functions for the arc \mathcal{C}_1 and the line (0,2) to (0,-2) and the line segment ${\cal C}_2$ from (0,-2)Evaluate $\int_{\mathcal{C}}F\cdot d\mathbf{r}$, where C consists of the arc C_{1} of to (-1,0). (Caution: you must give the parametric $F(x, y) = <16x^4 + 8x^2y^2 + y^4 + 4x, 4x^2 + y^2 + y >.$ 6. (5 points) Let $\it F$ be the vector field given by segment C_2 exactly).

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Name	function	$\rho^x + r cos$
	(1) (2 points) Find a potential function f for the field	$F(x,y) = (ye^x + \sin y)\mathbf{i} + (e^x + x\cos y)\mathbf{j}$
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(2) (3 points) The force field $F(x,y,z) = \sin(yz)i + xz\cos(yz)j + xy\cos(yz)k$ (ye F(x,y)

moves a particle along a piecewise smooth curve ${\it C}$ from (0,0,0) to $(1,\pi,\frac{1}{2})$. Determine the work that is done.

8. Evaluate the line integral $\int_C \frac{y}{x+1} dx + 2xy dy$ where C consists of the line segment C_1 from (1,1) to (0,0) followed by the curve C_2 : $y=x^2$ from (0,0) to (1,1).





 $x^2+y^2+z^2=a^2$ that lies inside the cylinder $x^2+y^2=ax$ 10. (5 points) Find the area of the part of the sphere where a > 0.

9. (4 points) Evaluate the line integral $\int_C F$. dr where C consists of the horizontal line segment C_1 from (0,0) to (2,0) followed by the arc C_2 of the semicircle $(x-1)^2+y^2=1,\ y\ge 0$ and

 $F(x,y) = (y e^{\sin x} \cos x + \frac{1}{2}y^2)i + (2xy + e^{\sin x} + \sqrt{y^3 + 1})j.$