

Answer A-Z.

Name _____

Circle your TA section:

DIS 321	T 8:50	Milind Shah
DIS 322	R 8:50	Milind Shah
DIS 323	T 9:55	Milind Shah
DIS 324	R 9:55	Milind Shah
DIS 325	T 11:00	Duygu Unlu
DIS 326	R 11:00	Duygu Unlu
DIS 327	T 12:05p	Duygu Unlu
DIS 328	R 12:05p	Duygu Unlu
DIS 329	T 1:20p	Kiran Manchikanti
DIS 330	R 1:20p	Kiran Manchikanti
DIS 331	T 2:25p	Lipika Dekka
DIS 332	R 2:25p	Lipika Dekka
DIS 333	T 3:30p	Lipika Dekka
DIS 334	R 3:30p	Lipika Dekka

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Problem	Points	Score
1-35	35	
36	5	
37	5	
38	5	
Total	50	
× 4	200	

36. Find

$$\iint_S y \, dS$$

where S is the surface of the helicoid (or spiral ramp). It is parameterized by the equations:

$$x = r \cos(\theta)$$

$$y = r \sin(\theta)$$

$$z = \theta$$

$$0 \leq r \leq 1, \quad 0 \leq \theta \leq \pi$$

Show all work below and put your answer in this box:

37. Find the point on the surface $z^2 = 2y - 2x + 4$ that is closest to the origin.

Show all work below and put your answer in this box:

38. A particle starts at the point $(-1, 0)$, moves along the x -axis to $(1, 0)$, and then along the semicircle $y = \sqrt{1 - x^2}$ back to the starting point. Call this curve C . Find

$$\oint_C (x^2 e^x - y + xy^2) dx + (x + e^y \cos(y) + x^2 y) dy$$

Hint: What does Green's Theorem say?

Show all work below and put your answer in this box: