

Exam II Answers  
Math 126 D, E, & F & F Autumn 2017

Version 1: In #1,  $\mathbf{r}(t) = \langle 3t^2, -t^3, 2t \rangle$ .

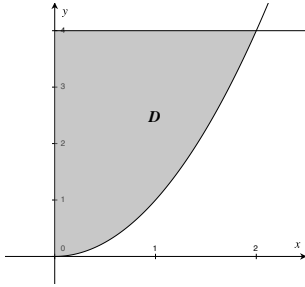
1.  $z = -6x + 6y + 124$

2.  $\sqrt{\frac{13}{2}}$

3. (a)  $\frac{\partial z}{\partial x} = \frac{-y}{e^z + y^2}$  and  $\frac{\partial z}{\partial y} = \frac{-x - 2yz}{e^z + y^2}$

(b)  $k \approx dz = -0.006$

4. (a)



(b)  $\iint_D f(x, y) dA = \int_0^4 \int_0^{\sqrt{y}} f(x, y) dx dy$

5.  $m = \int_0^{\pi/2} \int_{2\cos\theta}^{2+\cos\theta} \sin\theta dr d\theta + \int_{\pi/2}^{\pi} \int_0^{2+\cos\theta} \sin\theta dr d\theta = 3$

Version 2: In #1,  $\mathbf{r}(t) = \langle t^2, -t^3, 3t \rangle$ .

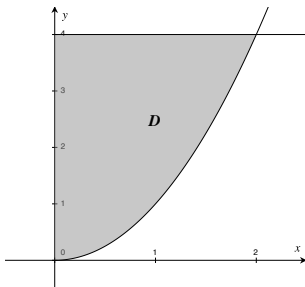
1.  $z = -2x + 9y + 270$

2.  $\sqrt{\frac{41}{2}}$

3. (a)  $\frac{\partial z}{\partial x} = \frac{-y}{e^z + y^2}$  and  $\frac{\partial z}{\partial y} = \frac{-x - 2yz}{e^z + y^2}$

(b)  $k \approx dz = -0.008$

4. (a)



(b)  $\iint_D f(x, y) dA = \int_0^4 \int_0^{\sqrt{y}} f(x, y) dx dy$

5.  $m = \int_0^{\pi/2} \int_{2\cos\theta}^{2+\cos\theta} \sin\theta dr d\theta + \int_{\pi/2}^{\pi} \int_0^{2+\cos\theta} \sin\theta dr d\theta = 3$