NAME: PID:

MATH 20C, SECTION A07 December 2, 2014

# Quiz 4

*Show all your work for full credit. To maximize credit, cross out incorrect work.*

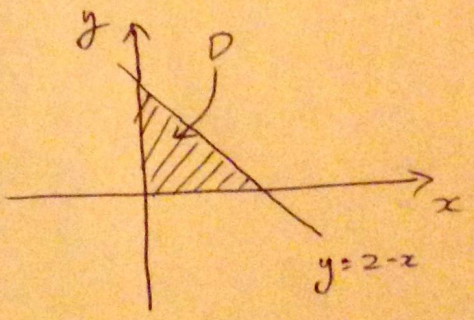
*No credit will be given for unsupported answers.*

1. (10 points) Compute the double integral

$$\iint_D (x+y)\,dA$$

where $D$ is the region determined by $0 \le y \le 2-x \le 2$.

SOLUTION




$$\iint_D (x+y)\,dA = \int_0^2 \int_0^{2-y} (x+y)\,dx\,dy$$

$$= \int_0^2 \left( \frac{x^2}{2} + yx \right)_0^{2-y} dy$$

$$= \int_0^2 \left\{ \frac{(2-y)^2}{2} + (2-y)y - 0 \right\} dy$$

$$= \int_0^2 \left( \frac{2-y}{2} \right)(2 - y + 2y)\,dy$$

$$= \frac{1}{2} \int_0^2 (4 - y^2)\,dy = \frac{1}{2} \left( 4y - \frac{y^3}{3} \right)_0^2$$

$$= \frac{8}{3} \quad //$$

*Good luck!*

*And some good news: this is the last quiz!* ☺