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Quiz 11/7

MAC-2313

Fall 2017

1. (6 pts) Let  $R$  be the region in the first quadrant bounded by  $y = \sqrt{x}$  and  $y = x/2$ .

(a) (2 pts) Sketch the region  $R$  in the  $xy$ -plane.

(b) (2 pts) Fill in the missing limits of integration:

$$\int_R \int f(x, y) \, dA = \int_{\square}^{\square} \int_{\square}^{\square} f(x, y) \, dy \, dx$$

(c) (2 pts) Fill in the missing limits of integration:

$$\int_R \int f(x, y) \, dA = \int_{\square}^{\square} \int_{\square}^{\square} f(x, y) \, dx \, dy$$

2. (6 pts) Use polar coordinates to evaluate  $\int_R \int \frac{1}{1+x^2+y^2} \, dA$ ,

where  $R$  is the sector in the first quadrant bounded by  $y = 0$ ,  $y = x$  and  $x^2 + y^2 = 4$ .