

Name: Solution key

Panther ID: \_\_\_\_\_

MiniQuiz 11/1

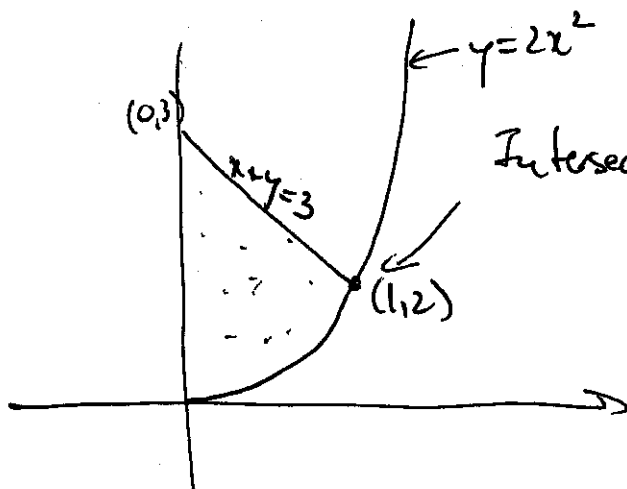
MAC-2313

Fall 2018

1. (5 pts) Let  $R$  be the region in the first quadrant bounded by  $y = 2x^2$ ,  $x + y = 3$  and  $x = 0$ . Fill in the missing limits of integration:

$$\int_R \int f(x,y) dA = \int_{x=0}^{x=1} \int_{y=2x^2}^{y=3-x} f(x,y) dy dx$$

$$\int_R \int f(x,y) dA = \int_{y=0}^{y=2} \int_{x=0}^{x=\sqrt{\frac{y}{2}}} f(x,y) dx dy + \int_{y=2}^{y=3} \int_{x=0}^{x=3-y} f(x,y) dx dy$$



Intersection point  $\begin{cases} y = 2x^2 \\ x + y = 3 \end{cases} \Leftrightarrow \begin{cases} y = 2x^2 \\ y = 3 - x \end{cases}$

$$2x^2 = 3 - x \Rightarrow$$

$$2x^2 + x - 3 = 0$$

$$(2x + 3)(x - 1) = 0$$

$$\boxed{x=1} \quad x = -\frac{3}{2} \leftarrow \text{not in first quadrant}$$