Name: _____

Directions: Show all work. No credit for answers without work.

1. [**2.5 points**] Calculate $\int_1^2 \int_0^1 (x+y)^{-2} \, dx \, dy$.

2. [**2.5 points**] Find the volume of the solid that lies under the plane $3x + 5y + z = 12$ and above the rectangle $R = \{(x,y) \colon 0 \le x \le 1, 0 \le y \le 1\}$.

3. [**2.5 points**] Evaluate $\int_0^1 \int_{\sqrt{y}}^1 \sqrt{x^3 + 1}\, dx\, dy$.

4. [**2.5 points**] Let D be the unit disc; that is, $D = \{(x, y)\colon 0 \leq x^2 + y^2 \leq 1\}$. Evaluate $\iint_D x^2 \sqrt{x^2 + y^2}\, dA$.