

# Math 2210 - Quiz 2

University of Utah

Summer 2007

Name: \_\_\_\_\_

1. (10 points)

Calculate the following double integrals.

(a) (3 points)

$$\int_{-1}^4 \int_1^2 (x + y^2) dy dx$$

(b) (3 points)

$$\int_{\frac{1}{2}}^1 \int_0^{2x} \cos(\pi x^2) dy dx$$

(c) (4 points)

$$\int_0^\pi \int_0^{1-\cos\theta} r \sin\theta \, dr \, d\theta$$

2. (10 points)

Evaluate the given integrals using either cartesian or polar integration, whichever works best for the given problem, and sketch the domain of integration. (Hint: Make the sketch first.)

(a) (5 points)

$$\int \int_S (x^2 - xy) dA;$$

$S$  is the region between  $y = x$  and  $y = 3x - x^2$ .

(b) (5 points)

$$\int_0^1 \int_0^{\sqrt{1-y^2}} \sin(x^2 + y^2) dx dy$$