Name: ID #: Section #:

**Q1**) [**3pts**] Calculate the iterated integral

$$\int_0^1 \int_0^1 (u-v)^5 \, dudv$$

**Q2**) [**3pts**] Find the local maximum and minimum values and saddle points of

$$f(x,y) = x^2 + y^2 + x^2y + 4.$$

**Q3**) [**4pts**] Use Lagrange Multipliers to find the maximum and minimum values of $f(x, y, z) = x + 2y$ on the curve of intersection between the plane $x + y + z = 1$ and the cylinder $y^2 + z^2 = 4$.

Name: ID #: Section #:

**Q1**) [**3pts**] Calculate the iterated integral

$$\int_0^1 \int_0^1 \sqrt{s+t}\, dsdt$$

**Q2**) [**3pts**] Find the local maximum and minimum values and saddle points of

$$f(x, y) = x^2 + y^2 + xy^2 + 3.$$

**Q3**) [**4pts**] Use Lagrange Multipliers to find the maximum and minimum values of $f(x, y, z) = 3x - y - 3z$ on the curve of intersection between the plane $x + y - z = 0$ and the cylinder $x^2 + 2z^2 = 1$.