Time Allowed: 120 minutes **Name:**_____
Total Weight: 80 points

Multivariable and Complex Analysis Quiz VI

SHOW ALL WORK TO RECEIVE FULL CREDIT

1. (10) Find a parametric representation and sketch the path of a unit circle, clockwise.

2. (10) Verify the Independence of Path Theorem for the integral of e^z from 0 to $1+i$ (a) over the shortest path and (b) over the x-axis to 1 and then straight up to $1+i$.

3. (20) Evaluate

$$\oint_C \frac{z}{z^2+4z+3}dz$$

where C is the circle with center -1 and radius 1.75.

4. (20) Evaluate

$$\oint_C \mathrm{Re}(z)dz$$

where C is the upper half of the unit circle.

5. (20) Integrate counterclockwise around the unit circle.

$$\oint_C \frac{z^6}{(2z-1)^6} dz$$