Name: _____

1. Let $z_1 = 1 + i$ and $z_2 = 2e^{i2\pi/3}$. Sketch $z_1 + z_2$ and $z_2/\overline{z_1}$.

2. When considered as a plane transformation, $f(z)$ has the effect of dilating by 3, rotating by $\pi/3$, followed by an upward shift by 3. Find a formula for $f(z)$.

3. Let $f(x + iy) = x^2 + y^2 + 2ixy$. Determine where f is complex differentiable.

4. Parametrize the lower half circle of radius 1 centered at i from $i-1$ to $i+1$ and integrate $y\,dx - x\,dy$ along this path.

5. Integrate xy^2 over the solid triangle with vertices $0, 2, i$.

1	2	3	4	5	total (50)	%

Prelim. course grade: %