

**MthSc 985: Topics in Discrete Mathematical Biology (Fall 2011)**  
**Quiz 5 (20 points)**

**NAME:**

**Instructions:** Answer each of the following questions completely. If something is unclear, or if you have any questions, then please ask. Good luck!

1. (4 points) Compute the residue of  $f(z) = \frac{1}{1-z}$  at  $z = 0$  and at  $z = 1$ .

2. (4 points) Compute the residue of  $f(z) = \frac{1}{z^2 - 6z + 5}$  at  $z = 1$ .

3. (4 points) Compute  $\oint_{|z|=1} e^z dz$ .

4. (4 points) Compute  $\oint_{|z|=2} \frac{1}{z^2 - 6z + 5}$ .

5. (4 points) Compute  $\oint_{|z|=10} \frac{1}{z^2 - 6z + 5}$ .