BRAC University

**MAT-215**

**Practice Sheet # 6**

**(Singularity & Residue Theorem)**

1. Evaluate  using the residue at the poles, where  is the unit circle

.

2. Evaluate  using the residue at the poles, around the circle .

3. Evaluate  using the residue at the poles, where  is the

upper half circle of the equation .

4. Evaluate  using the residue at the poles, around the circle 

with the equation .

**(Improper Real Integral)**

1. Show that 

2. Show that 

3. Show that 

4. Show that 

sin(x+iy) = sin(x) cosh(y) + i cos(x) sinh(y))

**cos(a+bi)=cosacoshb−isinasinhb**