**Jimma University**

**College of Natural sciences**

**Department of Mathematics Work Sheet (Math2072)**

*1. Expand the function about *

*2. Expand the function  about z=-2*

*3. Expand the function in the region*

*4. Find the Laurent series about the indicated singularity for each of the following function*

*5. Evaluate where c is the circle*

*6. Evaluate where c is the circle*

*7. Evaluate *

*8. Evaluate  where c is the circle*

1. **
2. **
3. **

*9. Locate in the finite z-plane all the singularities, if any of each of the following functions*

1. **
2. **
3. **

*10. Find the sum of the residue of the function f at its poles inside the circle*

*11. Evaluate *

*12. Evaluate *

*13. Under the transformation  find the image of *

*14. Find the image of trip under the transformation  and also show the region graphically.*

*15. Determine the linear transformation that maps the point  into the point.*

*16. Find the bilinear transformation that maps z1, z2, z3 onto w1, w2, w3*

* 1. **
  2. **