	SRM Institute of Science and Technology Kattankulathur	
	DEPARTMENT OF MEATHEMATICS	
	18MAB102T ADVANCED CALCULUS & COMPLEX ANALYSIS	
	UNIT –IV ANALYTIC FUNCTIONS	
	Tutorial Sheet -2	**Answers**
	Part – A	
1	Find the image of the circle |z|=3 under the transformation w=2z	6
2	Find a function w such that w=u+iv is analytic, if $u = e^x \sin y$	$f(z) = -ie^z + c$
3	Determine the analytic function u+iv whose real part $u = x^3 - 3xy^2 + 3x^2 - 3y^2 + 1$	$f(z) = z^3 + 3z^2 + c$
	Part – B	
4	Find the analytic function $f(z) = u + iv$ if $u - v = e^x(cosy - siny)$	$f(z) = e^z + c$
5	Find the analytic function $f(z) = u + iv$ if $u - v = \frac{sin2x}{cosh2y - cos2x}$	$f(z) = \frac{\cot z}{1+i} + c$
6	Determine the region D' of the w-plane into which the triangular region D enclosed by the lines x=0, y=0, x+y=1 is transformed under the transformation w=2z	
7	Find an analytic function $f(z) = u + iv$, given that $2u + 3v = \frac{sin\ 2x}{cos\ h2y - \cos x}$	$f(z) = \frac{(2+3i)\cot z}{13} + c$