

SUGGESTED PROBLEMS MATH 300

- Section 1.1 The Algebra of Complex Numbers: #s 5 – 25
- Section 1.2 Point Representation of Complex Numbers: #s 4 – 7, 16, 17
- Section 1.3 Vectors and Polar Form: #s 7, 9, 12, 13
- Section 1.4 The Complex Exponential: #s 1 – 8, 12, 14, 17, 19
- Section 1.5 Powers and Roots: #s 4 – 7, 9, 10, 11
- Section 1.6 Planar Sets: #s 2 – 8
- Section 1.7 Stereographic Projection: #s 1, 2, 5
- Section 2.1 Functions of a Complex Variable: #s 1, 3, 4, 5, 6
- Section 2.2 Limits and Continuity: none for the moment.
- Section 2.3 Analyticity: none for the moment.
- Section 2.4 The Cauchy-Riemann Equations: #s 3, 5, 8, 10, 11, 13, 15
- Section 2.5 Harmonic Functions: #s 2, 6, 7, 11
- Section 3.1 Polynomials and Rational Functions: #s 11, 13, 15
- Section 3.2 The Exponential, Trig and Hyperbolic Functions: #s 1, 5, 17, 21, 25
- Section 3.3 The Logarithm Function: #s 1, 3, 4, 5, 9, 10
- Section 3.5 Complex Powers and Inverse Trig Functions: #s 1, 3, 4, 5, 8, 9, 10, 11, 12
- Section 4.1 Contours: #s 5, 7, 8, 9
- Section 4.2 Contour Integrals: #s 3, 5, 8, 12, 14
- Section 4.3 Independence of Path: #s 1, 5, 12
- Section 4.4 Cauchy's Integral Theorem: #s 1, 3, 9, 10, 13, 14, 15, 16, 17, 18, 19, 20
- Section 4.5 Cauchy's Integral Formula and Consequences: #s 1, 2, 3, 4, 5, 6, 7, 8, 9, 10
- Section 4.6 Bounds for Analytic Functions: #s 1, 2, 4, 5, 6, 10, 11, 18
- Section 5.1 Sequences and Series: #s 1, 2, 3, 4, 7, 10, 11, 14
- Section 5.2 Taylor Series: #s 1, 2, 3, 4, 5, 7, 11, 13, 15
- Section 5.3 Power Series: #s 1, 2, 3, 4, 5, 7
- Section 5.5 Laurent Series: #s 1, 3, 4, 7
- Section 5.6 Zeros and Singularities: #s 1, 2, 3, 5, 6, 8, 12, 13, 14
- Section 6.1 The Residue Theorem: #s 1, 2, 3, 4, 5, 6, 7
- Section 6.2 Trigonometric Integrals over $[0, 2\pi]$: #s 1, 2, 3, 4, 5, 6, 7, 8, 9
- Section 6.3 Improper Integrals of Certain Functions over $(-\infty, \infty)$: #s 1 – 8, 11, 13