

APPM 5430      HOMEWORK #4

Monday Oct. 14, 2017

DUE MONDAY OCT 28, 2017

Answer the question in problem 3.7.1 for the equations:

$$a) \frac{dw}{dz} = z^2(w^2 + w), \quad b) z \frac{d^2w}{dz^2} + \left(\frac{dw}{dz}\right)^2 = 0$$

3.7. 3a,b; 4a; 5a-c; 7a-c

3.8. 2a-c

Answer question in problem 4.1.1 for the functions

$$a) \frac{z^2 + 1}{z(z + 1)}, \quad b) z^2 \sinh(1/z), \quad \frac{\log(z - z_0)}{2z^2 - 1} \text{ principal branch, } |z_0| > 1$$

4.1. 7

4.2. 2c,d; 4, 6

4.3. 2, 4; 7a ( $0 < k < 1$ ); 10