Physics 604 Homework #2 Fall '20
Dr. Drake

Note that the Arfken problems correspond to the 7th Edition with the corresponding 6th Edition problems in the parentheses.

1. Arfken 11.3.6 (6.3.3), 11.4.1 (6.4.2), 11.4.2 (6.4.4 but use a contour given by $|z-1|=1$)

2. If a function $f(z)$ is analytic on and within a closed contour C show that unless it is a constant it takes on its maximum value on C .
   Hint: Assume that $f(z)$ takes its maximum value at a point z_0 inside C and prove a contradiction by evaluating $f(z_0)$ using Cauchy's integral formula by an integral over a circle around z_0 that is inside of C. Then use the Schwarz inequality to prove that $f(z_0)$ can not exceed the maximum value on C.