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Homework 13  
Due: Friday, November 30

1. Consider the function  $f(z) = \frac{1}{(z-2)(z-4i)}$ . Find Laurent series expansions for  $f$  which are valid on each of the following domains:
  - (a)  $D_1 : |z| < 2$ .
  - (b)  $D_2 : 2 < |z| < 4$ .
  - (c)  $D_3 : 4 < |z|$ .
  - (d)  $D_4 : |z - 3| < 1$ .
  
2. [BC] 56.8.
  
3. [BC] 56.10. (HINT: In part (a), they fix a value of  $z$ , and define a function  $f(w) = f_z(w) = \exp(\frac{z}{2}(w - \frac{1}{w}))$ . Compute the Laurent expansion of  $f_z(w)$  at  $w = 0$ .)
  
4. [BC] 60.12.
  
5. [BC] 64.2.