

**Spring 2022, Math 579: Preliminary Problem Set 8**  
**Due: Thursday, March 10th, 2022**  
**Recurrence Relations**

**Preliminary problems.** These problems should be completed before discussion on Thursday.

(P1) Find constants  $A$ ,  $B$ , and  $C$  such that

$$\frac{1}{(1-z)^2(1+z)} = \frac{A}{1-z} + \frac{B}{(1-z)^2} + \frac{C}{1+z}.$$

(P2) Find constants  $A$ ,  $B$ , and  $C$  such that

$$\frac{1}{(1-z)(1+z^2)} = \frac{A}{1-z} + \frac{Bz+C}{1+z^2}.$$