Problem 1. Say that an integer is *threeven* if it is divisible by 3, *throdd like* 1 if it can be written as $3k + 1$ for some integer k, or *throdd like* 2 if it can be written as $3k + 2$ for some integer k. Prove that an integer is either threeven, throdd like 1, or throdd like 2.

Problem 2. Find a problem involving induction that is challenging and try to solve it. Then ask a precise question about it.