

**As always, a proof is required for any problem solution.**

1. Consider the subtraction game where Left is allowed to take any positive odd number of counters and Right may take any positive even number. Determine the outcome classes for the subtraction game on a single heap of  $n \geq 0$  counters.
2. Consider the subtraction game where Left is allowed to take any number of counters which is a power of two  $\{1, 2, 4, 8, \dots\}$ , and Right may take any positive number of counters which is *not* a power of two  $\{3, 5, 6, 7, 9, \dots\}$ . Determine the outcome classes for the subtraction game on a single heap of  $n \geq 0$  counters.