Problem Set 12

The value of a problem is not so much in coming up with the answer as in the ideas and attempted ideas it forces on the would-be solver. — I. N. Herstein

Prove or Disprove and Salvage if Possible.

1. The sum of an even and odd integer is odd.
2. The product of two odd integers is odd.
3. If $a$ and $b$ are integers and if $a|b$ then $a \leq b$.
4. If $a|b$ and $b|a$ then $a = b$.

Numerical Problems.

5. Use Euclid’s algorithm to compute $(4709, 6188)$.

6. Find an integral solution to the Diophantine equation $4709x + 6188y = 182$.
   Can you find a different integral solution to that Diophantine equation?
   Find a solution to the congruence $4709x \equiv 182 \pmod{6188}$.