

## Math Circle, Oct 8

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*Problems for Diophantine Equations, and Congruences*

1. Find the greatest common divisor of 578 and 442 using The Euclidean Algorithm.
2. Find the integers  $x$  and  $y$  which are the solutions of the Diophantine equation  $15x + 16y = 17$ .
3. Solve the congruence  $7x \equiv 5 \pmod{13}$ .
4. Is  $6x \equiv 1 \pmod{10}$  solvable?