

Name:

**Problem 1:** The Diophantine equation

$$6x + 14y = 152$$

has solutions parametrized by the equations

$$\begin{aligned}x &= 2 + 7t, \\y &= 10 - 3t,\end{aligned}$$

where  $t$  is an integer.

Give the set of solutions where  $x$  and  $y$  are **positive** integers.

You may give your answer by either explicitly enumerating either the elements of the set or the values of  $t$  giving those elements.