

1. For each pair of values  $s$  and  $t$  below, use repeated division to find  $\gcd(s, t)$  the greatest common divisor of  $s$  and  $t$  and then use the Euclidean Algorithm to solve the equation  $\gcd(s, t) = xs + yt$ , where  $x$  and  $y$  are integers. In other words, solve the decanting problems for decanters of sizes  $s$  and  $t$ .
  - (a)  $s = 22$  and  $t = 37$
  - (b)  $s = 483$  and  $t = 501$
  - (c)  $s = 89$  and  $t = 144$
2. Suppose you have decanters of sizes 99 and 105. Find the least amount of liquid that can be measured and explain why you cannot do better.