1. If a divides b and a divides c, prove that a divides $(br + ct)$ for any integer r and t.

2. If a divides c and b divides c, must ab divide c? Why or why not. What if $\gcd(a, b) = 1$?

3. Prove that $\gcd(a, a + b) = d$ if and only if $\gcd(a, b) = d$.

4. Find the greatest common divisor of 272 and 1479, using the Euclidean Algorithm. Use your answer to write the $\gcd(272,1479)$ as a linear combination of 272 and 1479.