Greatest Common Divisor

"the biggest integer that can divide both of them"

d is the gcd of a and b iff

#1 ✓ $d \mid a \wedge d \mid b$

#2 ✓ $(q \mid a \wedge q \mid b) \Rightarrow (q \mid d)$

$$\left[d = \gcd(a,b)\right] \Leftrightarrow \Big[\underbrace{[d \mid a \wedge d \mid b]}_{\#1\ \checkmark} \wedge \underbrace{[(q \mid a \wedge q \mid b) \Rightarrow (q \mid d)]}_{\#2\ \checkmark} \Big]$$

(Also, we don't usually bother ourselves with the negative gcd)