Properties of Quadratic Surds.

(1) The square root of a rational number cannot be expressed as the sum or difference of a rational number and a quadratic surd.

(2) If two quadratic surds cannot be reduced to others, which have not the same irrational part, their product is irrational.

(3) One quadratic surd cannot be equal to the sum or difference of two others, not having the same irrational part.

(4) If $a+\sqrt{b}=c+\sqrt{d}$, where *a* and *c* are rational, and $\sqrt{b},\sqrt{d}$ are irrational, then $a=c$ and *b*= *d*.