If $a, b, c \in \mathbb{Q}$,

1) D is a square $\Rightarrow \alpha, \beta \in \mathbb{Q}$

2) D is not a square $\Rightarrow \alpha, \beta$ are conjugate surds

$a, b, c \in \mathbb{R}$, $a > 0$

1) If $D > 0$, then α, β are distinct and real

2) If $D = 0$, then $\alpha = \beta$, are real

3) If $D < 0$, then α, β are distinct and complex conjugates of each other

$ax^2+bx+c=0 \qquad a,b,c \in \mathbb{C}$

1) $\alpha+\beta = \frac{-b}{2a} + \left(\frac{-b}{2a}\right) = -\frac{b}{a}$

2) $\alpha\beta = \left(\frac{-b}{2a}\right)^2 - \left(\frac{\sqrt{b^2-4ac}}{2a}\right)^2 = \frac{c}{a}$

3) $|\alpha-\beta| = \left|\frac{\sqrt{b^2-4ac}}{a}\right|$

4) $a\alpha^2+b\alpha+c=0$

$a\beta^2+b\beta+c=0$