

ix) Whose roots are α^n and β^n

↳ Replace $x \rightarrow x^{1/n}$

$$\alpha^n = x \\ \alpha = x^{1/n}$$

x) Whose roots are $\alpha^{1/n}$ and $\beta^{1/n}$

↳ Replace $x \rightarrow x^n$

xi) Whose roots are $P\alpha + q$ and $P\beta + q$.

↳ Replace $x \rightarrow \frac{x-q}{P}$

$$P\alpha + q = x \\ \alpha = \frac{x-q}{P}$$

Note 1:

a	b	c	α	β
+	-	+	+	+
-	+	-	+	+
+	+	+	-	-
-	-	-	-	-

$$x^2 - 5x + 6 = 0$$

$$x = 2, 3$$

$$x^2 + 5x + 6 = 0$$

$$x = -2, -3$$

Note 2:

In Any Quad Eq., if $a+b+c=0$ then.

$$\alpha = 1 \text{ and } \beta = c/a.$$

If $a-b+c=0$ then

$$\alpha = -1 \text{ and } \beta = -c/a$$

Location of Root.