**Roots of Cubics**

By the Fundamental Theorem of Algebra, a cubic equation $ax^{3}+bx^{2}+cx+d=0$ always has 3 (potentially repeated) roots, $α,β,γ$. We saw in the previous chapters that these could be…

*
*

**Example**

**Find a cubic equation with roots 2, -1 and -3.**

**Example**

1. $α, β$ **and** $γ$ **are the roots of the cubic equation** $2x^{3}+3x^{2}-4x+2=0$**. Without solving the equation, find the values of:**

**(a)** $α+β+γ$

**(b)** $αβ+βγ+γα$

**(c)** $αβγ$

**(d)** $\frac{1}{α}+\frac{1}{β}+\frac{1}{γ}$

2. **The roots of a cubic equation** $ax^{3}+bx^{2}+cx+d=0$ **are** $α=1-2i$**,** $β=1+2i$ **and** $γ=2$**. Find integers values for** $a,b,c$ **and** $d$**.**

Ex 4b pg 58-59