

2) Form a quadratic equation with real coefficients whose one root is $3-2i$

Solution: Since the complex root always occurs in pairs, so the other root is $3+2i$. The sum of the roots is $(3+2i) + (3-2i) = 6$. The product of the roots is $(3+2i)(3-2i) = 9 - 4i^2 = 9 + 4 = 13$.

Hence, the equation is

$$x^2 - Sx + P = 0$$

$$\Rightarrow x^2 - 6x + 13 = 0$$