## A - Level Further Maths 15 Minute Boost 5

For a polynomial with real coefficients, complex roots
occur in $\qquad$
When is a matrix singular?
State Viète's formulae for the cubic
$p(x)=a x^{3}+b x^{2}+c x+d$
with roots $\alpha, \beta$ and $\gamma$.
Express the area of the triangle $A B C$ in vector form.
$(\mathbf{A B})^{T}=$
1 Find $\left|\begin{array}{ccc}2 & 2 & -1 \\ 4 & 2 & 1 \\ 3 & 4 & -2\end{array}\right|$

2 Let $f(x)=x^{\frac{1}{2}}+3 x^{\frac{3}{2}}$ is rotated about the $x$-axis between the lines $x=4$ and $x=9$. Find the volume of revolution formed.

