Please attempt the following questions in preparation for the online session on 30th November 2017.

Q1
If $f(x) = x^3 - 3x^2 - 10x + 24$, what is the remainder when $f(x)$ is divided by $(x + 3)$?

Q2
Factorise fully $x^4 - 3x^2 - 4$.

Q3
(a) Show that $(x - 1)$ is a factor of $g(x) = 2x^3 - 5x^2 + x + 2$ and factorise $g(x)$ fully.
(b) Hence solve the equation $2x^3 - 5x^2 + x + 2 = 0$.

Q4
Find the points of intersection of the two curves with equations
$y = x^3 - 4x^2 + 3x + 1$ and $y = x^2 - 3x + 1$.

Q5
Write $f(x) = 3x^2 + 24x + 50$ in the form $f(x) = p(x + q)^2 + r$.

Q6
Solve $6 - x - x^2 < 0$.

Q7
Find the values of p for which the equation $x^2 + 4x + p - 5 = 0$ has no real roots.