MATH 495 Wednesday 12 April

Clifford's theorem; moduli of curves

To be discussed Friday 14 April / turned in Monday 17 April

(1) (a) Suppose X is a non-hyperelliptic curve of genus 4. We saw that in its canonical embedding in $\mathbb{P}^3$, X is the complete intersection of a unique irreducible quadric surface Q with an irreducible cubic surface F. When Q is non-singular, we found two g^1_3s on X; when Q is singular, we found one g^1_3. Prove that there are no others.

(b) Let X be a non-singular complete intersection of three quadric hypersurfaces in $\mathbb{P}^4$. We found a set of four points $P, Q, R, S \in X$ which live on the same plane in $\mathbb{P}^4$. Show that $|P + Q + R + S|$ is a g^1_4 on X.

(2) Exercise 5.3 (moduli of curves of genus 4).