NAME :

# Quizz 1

Let $R$ be a ring.

1. Recall the definition of a maximal ideal $I$ of $R$.

2. Give a sufficient and necessary condition for an ideal $I$ of $R$ to be maximal.

3. Show that :
   (a) the ring $\mathbb{F}_2[x]/(x^3+x+1)$ is a field ;

   (b) the ring $\mathbb{F}_3[x]/(x^3+x+1)$ is not a field.

4. For which integer $n$ does $x^2+x-3$ divides $x^4+5x^3-8x+8$ in $\mathbb{Z}/n\mathbb{Z}[x]$ ?