

## Quiz 16B

For 1 + 2, assume  $f(x) \in \mathbb{R}[x]$ .

1. Suppose  $f(a) = 0$ , where  $a \in \mathbb{R}$ .  
What do you know about  $f(x)$ ?

2. Suppose  $f'(a) = 0$ , where  $a \in \mathbb{R}$ .  
What do you know about  $f(x)$ ?

3. (True/False) It is possible for a polynomial of degree  $n$  over a field to have  $(n+1)$  distinct roots.

4. (True/False) It is possible for a polynomial of degree  $n$  over a ring to have  $(n+1)$  distinct roots.