

## Introduction to Commutative Algebra and algebraic Geometry Presence Exercise to Sheet 11

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### Exercise 1.

Let  $K$  be an algebraically closed field.

- a) Let  $g \in K[x_1, \dots, x_n]$ . Prove:  $\dim(D(g)) = n$ .
  - b) Let  $X$  be an irreducible affine variety in  $K^n$  and let  $f \in \mathcal{O}(X)$ ,  $f \neq 0$ . Prove  $\dim(X_f) = \dim(X)$ . (Recall:  $X_f = X \cap D(f)$ .)
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