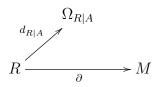# Math 918. Quiz #2

(1) Let R be an A-algebra and $R \xrightarrow{\partial} M$ be an A-linear derivation. Let $R \xrightarrow{d_{R|A}} \Omega_{R|A}$ be a universal derivation of R over A. The definition/universal property says *what* about this diagram:

$$
\begin{array}{ccc}
 & \Omega_{R|A} & \\
{\scriptstyle d_{R|A}} \nearrow & & \\
R & \xrightarrow{\quad \partial \quad} & M
\end{array}
$$

(2) Find a presentation of $\Omega_{R|\mathbb{Q}}$ where $R = \dfrac{\mathbb{Q}[w, x, y, z]}{(x^2 - wy, xy - wz)}$.