Exercise 28. Calculate $\mathbb{Q} \otimes_{\mathbb{Z}} \mathbb{Z}/(n)$ and $\mathbb{Q} \otimes_{\mathbb{Z}} \mathbb{Q}$.

Exercise 29. Show that tensor products are associative: Given a right R-module L, an R-S-bimodule M, and a left S-module N, show that

$$(L \otimes_R M) \otimes_S N \cong L \otimes_R (M \otimes_S N).$$

Exercise 30. Consider the poset

$$(X, \leq) = \left\{ \begin{array}{ccc} a & & b \\ & \searrow \quad \swarrow & \\ & 0 & \end{array} \right\}.$$

Calculate all homologies of the complex

$$0 \to \begin{bmatrix} \mathbb{Z} & & \\ & \searrow^{0} \quad \swarrow & 0 \\ & \mathbb{Z} & \end{bmatrix} \xrightarrow{\begin{smallmatrix} \cdot 2 & 0 \\ \cdot 3 & \end{smallmatrix}} \begin{bmatrix} \mathbb{Z} & & \\ & \searrow^{0} \quad \swarrow^{1} & \mathbb{Z} \\ & \mathbb{Z} & \end{bmatrix} \xrightarrow{\begin{smallmatrix} 0 & \cdot 5 \\ 0 & \end{smallmatrix}} \begin{bmatrix} \mathbb{Z} & & \\ & \searrow \quad \swarrow & \mathbb{Z} \\ & 0 & \end{bmatrix} \to 0$$

of **Ab**-valued presheaves on $(X, \leq)$.