hw-9 (2023/11/21)　　姓名:　　学号:

p.59: 11　Let $\mathscr{L}$ be the first order language which includes (besides variables, punctuation, connectives and quantifier) the individual constant a_1, the function letter f_1^2 and the predicate letter A_2^2. Let $\mathscr{A}$ denote the *wf*.

$$(\forall x_1)(\forall x_2)(A_2^2(f_1^2(x_1, x_2), a_1) \to A_2^2(x_1, x_2)).$$

Define an interpretation I of $\mathscr{A}$ as follows. D_I is $\mathbb{Z}$, $\bar{a}_1$ is 0, $\bar{f}_1^2(x, y)$ is $x - y$, $\bar{A}_2^2(x, y)$ is $x < y$. Write down the interpretation of $\mathscr{A}$ in I. Is this a true statement or a false one? Find another interpretation in which $\mathscr{A}$ is interpreted by a statement with the opposite truth value.

(注意此题有三问: 1) 用自然语言（中文/英语）写出 $\mathscr{A}$ 在 I 下的直观含义; 2) 回答在 I 下 $\mathscr{A}$ 是为真还是为假; 3) 基于你对第二问的回答，为公式 $\mathscr{A}$ 找一个新的解释，且在这个新解释中，$\mathscr{A}$ 的真值与你第二问的答案恰好相反)[所以你对第二问的回答很重要]

Your answer:　　(*10 points*)