Math 361
Quiz 8

1. (4 pts.) Here is a proof that in a ring, a distributive property of multiplication over *subtraction* always holds. Give a reason for each equality sign.

$$\begin{aligned} a(b-c) &\overset{\text{(a)}}{=} a[b+(-c)] \\ &\overset{\text{(b)}}{=} ab + a(-c) \\ &\overset{\text{(c)}}{=} ab + [-(ac)] \\ &\overset{\text{(d)}}{=} ab - ac \end{aligned}$$

2. (6 pts.) Let $(R, +)$ be an abelian group. Show that $(R, +, \cdot)$ is a ring if we define $ab = 0$ for all $a, b \in R$.