Ring	odd integers and 0	$\begin{pmatrix} a & b \\ 0 & c \end{pmatrix}$	$\begin{pmatrix} 0 & 0 \\ 0 & a \end{pmatrix}$	$\mathbb{Z}$ with $a \oplus b = a+b-1$, $a \odot b = a+b-ab$
1. $a+b \in R$	☹ $1+3=4$ (not odd)	☺	☺	
2. $a+(b+c)=(a+b)+c$	OK ☆	OK	OK	☺
3. $a+b=b+a$	OK ☆	OK	OK	
4. $0+a=a$ $0 \in R$	☺	☺ $\begin{pmatrix} 0 & 0 \\ 0 & 0 \end{pmatrix}$	☺ $\begin{pmatrix} 0 & 0 \\ 0 & 0 \end{pmatrix}$	
5. $a+x=0$ $-a \in R$	☺	☺	☺	
6. $ab \in R$	☺	☺	☺	pg 56 #22
7. $a(bc)=(ab)c$	OK ☆	OK	OK	☺
8. $a(b+c)=ab+ac$ etc	OK ☆	OK	OK	
commutative 9. $ab=ba$	OK ☆	☹	☺	
10. $a \cdot 1 = a$ $1 \in R$ with identity	☺	☺ $\begin{pmatrix} 1 & 0 \\ 0 & 1 \end{pmatrix}$	☺ $\begin{pmatrix} 0 & 0 \\ 0 & 1 \end{pmatrix}$	
	Not a ring	ring with identity	Commutative ring with identity	

☆ Subset of $\mathbb{R}$. Don't have to check

Homework Sec. 3.1
do pg 54 #5 a, c, d, e, f like this
if 4 is ☺, tell what matrix is 0
if 10 is ☺, tell what matrix is 1
the answer to anything is no ☹
give an example.
pg. 56 #22. prove or disprove property 7 (multiplicative associativity)
Write a clear proof of M6 and M7.