

All problems are to be written up clearly and thoroughly, using complete sentences. This assignment is due in discussion at 2pm on Thursday, April 11th.

For all T/F problems on the homework, provide a brief justification for your answer. That may be citing an appropriate theorem or providing a counterexample.

1. Section 1.2 problems 1, 8, 9, 10, 11, 12, 13, 14, 15, 16, 22
2. Section 1.3 problems 1, 6, 7, 8 a, c, d, 10, 11, 12, 15, 19, 20, 23, 24, 30, 31
3. For the prime 5, fill in the following tables of sums and products of elements in  $\mathbb{F}_5$ . Then find the multiplicative inverses of each element.

+	0	1	2	3	4
0					
1					
2					
3					
4					

+	0	1	2	3	4
0					
1					
2					
3					
4					

4. Show that  $\mathbb{C}$  is a vector space over  $\mathbb{R}$ .