

Homework Set 1

DUE: SEP 10, 2018 (BEGINNING OF CLASS)

INSTRUCTIONS FOR HANDING IN HOMEWORK: PILES OF HOMEWORK SHOULD BE IN ALPHABETICAL ORDER: FAN'S STUDENTS TO THE LEFT PILE AND WANG'S TO THE RIGHT.

DO but DO NOT HAND IN the following problems from Goode and Annin:

1. Section 2.1, True and False.
2. Section 2.1, 10-11.
3. Section 2.2, True and False.
4. Section 2.2, 4 (f)-(j).
5. Section 2.3, True and False.
6. Section 2.4, True and False.
7. Section 2.5, 1-8.

DO and SUBMIT the following problems from Goode and Annin:

8. Section 2.1, 1,2,8.
9. Section 2.1, 16.
10. Section 2.1, 32.
11. Section 2.2, 3 (a)-(d).
12. Section 2.2, 15.
13. Section 2.3, 3. Explain geometrically, in terms of lines and planes, what the statement of the problem is claiming.
14. Section 2.3, 9.
15. Section 2.3, 17.
16. Section 2.4, 9-10.
17. Section 2.4, 11-12.
18. Section 2.4, 15 and 18.
19. Section 2.5, 22.
20. Section 2.5, 25.

Extra Credit Problems

21. Goode and Annin, Section 2.1, 33.
22. Goode and Annin, Section 2.2, 40.
23. Derive a sufficient and necessary condition on given real numbers a, b, c, d that guarantees the existence of a 2×2 matrix $\begin{bmatrix} x & y \\ z & w \end{bmatrix}$, such that:

$$\begin{bmatrix} a & b \\ c & d \end{bmatrix} \cdot \begin{bmatrix} x & y \\ z & w \end{bmatrix} = \begin{bmatrix} 1 & 0 \\ 0 & 1 \end{bmatrix}.$$