

## Math 241 F1H: Problem Set 2

**Due date:** In class on Tuesday January 29.

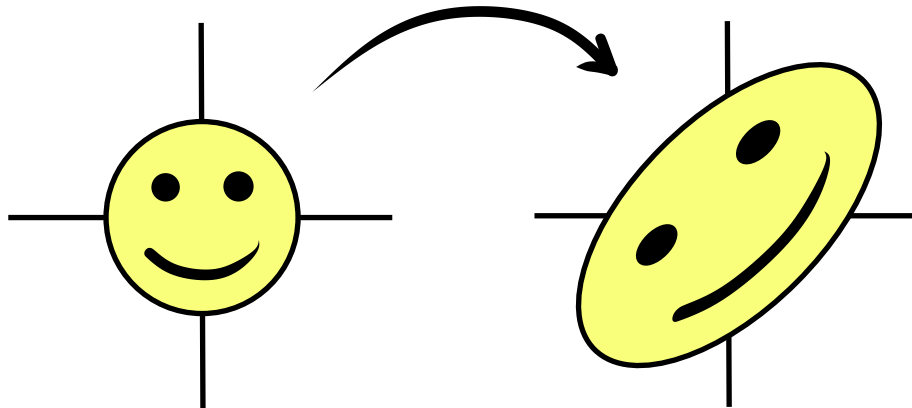
Problems from Lovric's *Vector Calculus*.

**§1.4:** #3,6,8,16,17,22,23<sup>1</sup>,34.

**§1.5:** #6, 16, 20.

**N1:** Find the matrix for the linear transformation  $\mathbb{R}^2 \rightarrow \mathbb{R}^2$  which is

- (a) Reflection in the line  $y = -x$ .
- (b) Shown in the picture below. (Note: Feel free to use a ruler to try to figure this out, but your final answer should be exact, involving just integers and basic operations like division, roots, etc.)



**N2:** Find the matrix for the linear transformation  $\mathbb{R}^3 \rightarrow \mathbb{R}^3$  which is rotation about the  $y$ -axis through angle  $\pi$ .

**Note:** This assignment is complete. No further problems will be assigned on Monday.

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<sup>1</sup>A previous version of this assignment listed 24 here rather than 23. Either problem will be accepted for full credit.