

MATH 251 (PHILLIPS): WRITTEN HOMEWORK 7 PART 2.

This homework sheet is due in class on Friday 16 May 2025 (week 7), in class. Write answers on a separate piece of paper, well organized and well labelled, with **each solution starting on the left margin of the page**.

All the requirements in the sheet on general instructions for homework apply. In particular, show your work (unlike WeBWorK), give exact answers (not decimal approximations), and **use correct notation**. (See the course web pages on notation.) Some of the grade will be based on correctness of notation in the work shown.

20 points.

A 13 foot ladder leans against a vertical wall in a room with a high ceiling and level floor. Because the floor is slippery, the foot of the ladder is sliding away from the wall. When the foot is 5 feet from the wall, it is sliding away at 3 feet per hour. At this time, what is the rate of change of the angle between the ladder and the floor? (Be sure to include the correct units.)

Comments. This problem involves an angle, and in this way is different from examples done so far on worksheets or in lecture. But the basic principles are the same.

Example 4.3 in the textbook also involves an angle, with similar geometry. The algebra at the end of this problem is simpler than in Example 4.3.