

Exercises on Differentiation

There has been a wide range of performance on the **rules of differentiation**. This indicates that some students are well-prepared and doing well on differentiation, while others are struggling with these basic rules. There is a **special WeBWorK assignment** that will be available until the end of this month. These exercises are **optional**, but will provide an excellent opportunity to test your skills of differentiation. (Many of the problems come straight from the University of Michigan's Gateway exam, where students must score high on the basics to pass the course.) Students who have performed well on differentiation and thoroughly understand the rules probably don't need to work these problems (about 15% of the class). The remaining (85% of the class) will benefit from the additional practice. As always, you should be able to work these differentiations with no more than the aid of a **3x5 note card**. The primary value of these exercises is not in getting the correct answer, but systematic application of the rules of differentiation and learning how to work these problems **on your own**.

As an incentive for students to work these exercises, the following rules will apply:

1. These **extra-credit** points will be added to **Quizzes 6, 7, and 8**.
2. The **maximum** possible addition is **3 points** to each quiz (up to 9 points total).
3. The **3 points** will be **multiplied** by the **fraction of correct answers** from WeBWorK.
4. The individual quiz scores **cannot exceed 20 points**. (Thus, if you scored 18 on a quiz, at most 2 points will be added to your score.)

As an example, suppose Student A scored 18, 13, and 14 on Quizzes 6, 7, and 8, respectively. Assume this student works 86% of these exercises correctly, so $0.86 \cdot 3 = 2.6$. The new quiz scores would become 20, 15.6, 16.6.

The purpose of these exercises is to prepare you for doing well on differentiation for the rest of the semester. Thus, the sooner you work through the exercises, the greater the benefit to your performance. If you are having difficulty with these exercises, then you should attend office hours to help better prepare you for this course.