WACKY LIMITS

Purpose. The purpose of this activity is to help students understand deeply what it means for a limit to exist. It also enforces understanding of limit laws, composition of functions, one-sided limits, and the notion of no limit existing.

Preparation (before class) and implementation (in class). This can either be used as a follow-up activity for Limit Sentences or as a stand-alone activity.

Print a copy of the Wacky Limit worksheet for each student. We suggest randomly collecting one per group at the end of the period. Tell the students that this will be the case, so they know to work together yet also document their work individually.

Emphasize the instructions to the group (or have the students read the directions aloud). The goal is to have the students explain why the answers are the way they are using mathematically correct language and notation. Note that many of the answers are not easy. In fact, they may even make you think. We strongly suggest you try the activity before giving it to your students!!!

Suggested directions. If you wish to make this project as discovery-based as possible, you can distribute the activity, or have it waiting on students' tables as they come in, without instructions. Alternatively, you can introduce the project with directions like the following:

Leading questions and general ideas. As the students explore this activity, certain questions, like the following, may arise—or you may wish to bring them up to guide the students in their learning.

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Debrief. If possible, leave some time after the activity is completed for discussion that is more content-focused. This will provide students with the opportunity to understand how the explorations they have just completed apply to the "nuts and bolts" of the topic in question.

Some issues that might be discussed are:

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Follow-up challenge.