Math 120 Homework 4: Common student errors

- Problem 1: Showing that for every \( M > 0 \), there exists \( R > 0 \) such that for every \( x \) such that \( x > R \), \( |P(x)/Q(x)| > M \) (instead of \( P(x)/Q(x) > M \)).

- Problem 3: Not invoking the fact that \( f(1) = 1 \).

- Problem 5: Confusing continuity with uniform continuity. I didn’t deduct marks for this because it is a subtle point and doesn’t affect the correctness of the rest of the proof. Many students thought that continuity meant “for every \( \epsilon \) there exists a \( \delta \) such that for any \( x, y \) such that \( |x - y| < \delta, |f(x) - f(y)| < \epsilon \)” when in fact \( y \) needs to be fixed in the beginning.