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## CS 173 DISCUSSION 3: MORE PROOFS

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**Problem 1.** For any integers  $m$  and  $k$ , if  $0 < \frac{1}{k} < m$  then  $\frac{m}{m^2+1} < k$

**Problem 2.** For all integers  $m$  and  $n$ , if  $mn$  is even, then  $m$  is even or  $n$  is even.

**Problem 3.** Prove that  $\sqrt{2} + \sqrt{6} < \sqrt{15}$ .